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GOLDEN CALCITE CRYSTAL

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Elmer B. Rowley Collection, Glens Falls, N. Y.

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September - October, 1957

Whole Number 260

R&M CHANGES PRINTERS

With this issue, the 31st Anniversary number of ROCKS AND MINERALS, we change printers.

We have been with our old printers for over 20 years and though they were satisfactory in many ways, and put out a nice magazine, we were forced to leave them because they got so far behind that R&M was coming out *two* months late. We went along with them for many months hoping they would catch up with their work but when conditions failed to improve—we had to look around for another printer. We got one—the Graymoor Press in Peekskill, N. Y.

For the past 20 years, ROCKS AND MINERALS was printed in New Jersey and just before each issue went to press, we had to trot down to the printers (in all kinds of weather, hot or cold, rain or shine—snow or sleet) to check final details. When we were forced to change printers, and had to look around, we found one—right in our own town, and only 4 blocks from our office. The Graymoor Press is a large printing establishment, specializing in magazines, with a most friendly and cooperative personnel, and we are very fortunate to have them as our printers.

Beginning with the Nov.-Dec. issue, ROCKS AND MINERALS will come out on time.

Attention Subscribers!

ROCKS AND MINERALS comes out once every two months as follows:

Jan.-Feb.	.....	out about	.....	Dec. 20th
Mar.-Apr.	.....	"	"	Feb. 20th
May-June	.....	"	"	Apr. 20th
July-Aug.	.....	"	"	June 20th
Sept.-Oct.	.....	"	"	Aug. 20th
Nov.-Dec.	.....	"	"	Oct. 20th

Photos Wanted for the front cover!

R&M is desirous of obtaining photos of minerals for its front cover. The photos must be black and white and must be 3x5 inches in size. If subscribers have photos that they could donate, we would be very glad to get them. Please do not send square, round, oblong, or in color—they must be 3x5 and black and white.

ROCKS & MINERALS

PETER ZODAC, Editor and Publisher
America's Oldest and Most Versatile
Magazine for the Mineralogist, Geol-
ogist, Lapidary.

Published Bi-Monthly

OFFICIAL JOURNAL



ROCKS & MINERALS
ASSOCIATION

WHOLE NO. 260

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SEPTEMBER-OCTOBER, 1957

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CHIPS FROM THE QUARRY

Coming Events

Oct. 6, 1957—Rockhound picnic, 12:00 noon, Pioneer Park, Lincoln, Nebr. Sponsored by Lincoln Gem and Mineral Club. For further particulars contact the president of the club, Dick Hedges, 5844 South St., Lincoln, Nebr.

Oct. 11, 1957—Auction night, Earth Science Club of Northern Illinois, 4729 Prince St., Downers Grove, Ill.

March 7, 8, 9, 1958—The 1958 Convention of the Rocky Mt. Federation of Mineral Societies will be held in Phoenix, Ariz. in conjunction with the Annual Gem & Mineral Festival. The Mineralogical Society of Arizona, The Maricopa Lapidary Society, and the AiResearch Lapidary Society are the hosts.

Collecting of minerals is growing!

Editor R&M:

The collecting of rocks and minerals as a hobby is growing by leaps and bounds. For many years it just coasted along, and visiting old mine workings and quarries you seldom met any other collector.

Now no matter how far off the beaten path the rock dumps are, you are bound to meet fellow collectors, and even if the pickings are poor, you have the satisfaction of discussing your hobby and making a new acquaintance which in the future may lead to many satisfactory exchanges.

Enclosed is \$3.00 for my subscription for the coming year so I will not miss any issues.

Thos. R. Lewis
Box 1
Hamburg, N. J.

July 20, 1957

PLEASE—READERS—PLEASE

When sending in clippings from newspapers, or magazines—please—please—please let us have the name of the newspaper or magazine and date of issue.

And if you have occasion to send us some specimens—or to any mineral collector, for that matter—please—please—please—wrap a label with each specimen, giving its name if possible but its locality **ALWAYS**.

A mineral collector wants to know the locality of each specimen he receives, if it has no locality the specimen is of no interest to him. And if the locality should be a tiny settlement—give the name of the county in which it is located.

WATCH FOR IT!

The **Christmas Number** of R&M (Nov-Dec 1957) will be out Oct. 20th. Watch for it!

Invitation extended to Rockhounds!

Edward J. O'Nuska, 209 Pilgrim Rd., Bridgeport 10, Conn., owns a 45 acre tract on George's Hill Road, near Kettletown State Park entrance in Connecticut. His property borders on Kettletown State Park.

On August 20, 1957, Mr. O'Nuska called at the offices of R&M, bringing with him a number of specimens—such as hyalite, manganeseite, rose quartz, black tourmaline—which come from a small diggings in a pegmatite dike on his property.

Before leaving, he authorized us to print in R&M a notice in which he extends an invitation to Rockhounds to visit his property, and collect minerals. Bring a geiger counter, UV lamp, etc.—he suggested.

If anyone visits the property, drop him a line telling what you found. He would appreciate this.

EPIDOTE AND ALLANITE

at Schroon Lake, New York

By Elmer B. Rowley, 214 Ridge St., Glens Falls, N. Y.

An interesting occurrence of crystallized epidote has been exposed recently during road blasting operations involving the relocation of highway Route 9 near Schroon Lake, in northern Warren County, New York. The matrix rock is a dense, hard gabbro diorite which provides excellent quality fill for the new road bed. This makes it most fortunate for the road contractor, but most unfortunate for the mineral collector. Consequently as the blasted rock is re-deposited as roadbed fill, this mineral occurrence will be completely buried beneath the new highway and lost to the mineral collecting fraternity.

Epidote is a silicate of calcium, aluminum and iron, bearing the formula $\text{Ca}_2(\text{Al},\text{Fe})_3(\text{SiO}_4)_3(\text{OH})$. It commonly occurs as monoclinic crystals of prismatic habit, usually quite slender and terminated at one end only. Parallel crystal growth terminating in fan-like aggregates is not uncommon. Epidote crystals are most difficult to orient and interpret even when they are sharp and well formed. This is because its elongated crystal habit bears such a striking resemblance to prism faces of crystals with a normal elongated habit. However, the elongated facial planes are often deeply striated parallel to the "b" ortho-axis, and recognition of this physical characteristic aids in orienting the crystal so its monoclinic symmetry is revealed. It has a vitreous to dull luster with a color grading between yellow green and a (pistachio) greenish-brown. The color of epidote is most distinctive and characteristic, and when considered in association with its geological occurrence in cavities and fissures of the ferromagnesian metamorphosed rocks, positive identification is not too difficult.

Epidote is often present in varying

quantities as a rock-forming mineral. It is formed as a product of metamorphic activity involving mineralizing solutions attacking feldspar-rich rocks containing considerable quantities of the ferro-magnesian minerals, amphibole and pyroxene; that is, the basic rocks. However, under suitable conditions it may also occur along the metamorphosed contact of limestone rocks.

GENERAL GEOLOGY OF REGION

The geological structure of the southeastern Adirondacks is a complicated patch work of heterogeneous types and formations. The area has been invaded at least three times by major igneous intrusions with the result that each preceding older formation has been either cut up into small segments; assimilated in the succeeding igneous invasions or metamorphosed into completely new types of rock structures. A complex geology such as this is most difficult to interpret. The Schroon Lake epidote occurrence lies within this region.

The oldest recognizable formations are the Pre-Cambrian series of schists, gneisses, quartzites and limestones. These represent the metamorphosed sediments deposited originally in an ancient sea which covered this region during an era pre-dating known geological history. Even older land masses of considerable extent must have existed to satisfactorily account for the vast quantities of sediments represented in these later (younger) metamorphosed formations. The sea in which they were deposited was apparently quite shallow because most of those sediments must have consisted of lime muds and fine-grained sands indicative of shallow-sea deposition to produce the type of metamorphosed rocks which succeeded them. The areas of Grenville limestone scattered through-

out this region are indicative of original limestone beds. "Grenville" is a name given to identify a geological type formation first noted and mapped near Grenville, Quebec, Canada. A representative exposure of Grenville limestone in this area may be observed along the east bank of the Hudson River a few hundred yards north of the Queen City Golf course on the road between Warrensburg, New York and The Glen. Solid beds of massive quartz such as the occurrence west of Route 9 about one-half mile north of Saratoga Springs, New York are indicative of original sandstone beds of relatively fine texture.

The first recognizable igneous intrusion within the area was an extensive invasion of molten magma which pushed upward from beneath those sediments, now comprising the higher peaks of the central Adirondack Mountains. The overlying sediments were pushed up into a great arch and formed a complete capping over that intrusive body of plutonic material. At no place within the area is there any evidence to suggest that this magmatic invasion reached the surface, as the character of rock structure as now exposed is indicative of cooling and solidification deep within the earth. Their present exposure is a result of succeeding eras of erosion of the less resistant cap rock. This vast igneous invasion was in the form of a laccolithic structure composed of a large central core which overflowed at the top, into, and across the adjacent country rock. The resultant formation is a syenitic rock known as anorthosite, composed essentially of plagioclase feldspar and containing lath-like phenocrysts of labradorite.

The second igneous invasion within this region formed extensive areas of granite-syenite rocks. In some areas the rocks carry sufficient silica as quartz to be classified as true granites, while in others quartz as a component mineral is notably lacking forming large syenite masses. Much of the granite-syenite series is gneissoid in character. Along the contact zone of these invasions with the older country rock, stringers and arms

of granite-syenite cutting across, and penetrating into the older anorthosite can be observed. This evidence proves quite conclusively they represent a later (younger) period in geological time.

The final large scale igneous invasion of molten magma formed extensive stocks and bosses of gabbroic material throughout the southeastern periphery of the Adirondack Mountain area. In most instances they form plug-like masses with vertical, to near-vertical walls in contact with the granite-syenite which they invade. The magmas contained excess quantities of the ferro-magnesian elements which combined to form such minerals as the amphiboles, pyroxenes, magnetite, ilmenite, etc.

PEGMATITES

Closely associated with this final large scale igneous invasion was the formation of pegmatites and pegmatitic material. Some of the pegmatites in the southeastern Adirondacks are quite typical pegmatite dikes. Other pegmatitic type exposures as revealed in mine tunnels and road cuts in this region, are of the lit-par-lit type, in which, separate stringers of pegmatitic structure invade the more basic rocks along their weaker zones of foliation. These invasions are always accompanied by varying quantities of mineralizing solutions, rich in such active mineralizing agents as water vapor, fluorine, boron, chlorine, phosphorus, sulphur and other rarer elements. These solutions injected into the country rock under high pressures and equally high temperatures produce various types of minerals which are a product of this type of contact metamorphism. Certain areas of such contact zones are oftentimes richly mineralized and represent fertile collecting for the observant collector.

PARAGENESIS OF THE EPIDOTE OCCURRENCE

The epidote occurs as quite typical vein material in a gabbro stock bounded on the south, west and north by pinkish gray granite and granite gneiss, and on the east by the waters of Schroon Lake. The epidote veins occur near the south-

ern border of the stock. The stock is directly opposite the Eagle Point State picnic area. The rock within the stock is a medium to coarse-grained diorite, cut by a normal fault with a present eroded face exposure of nearly 400 feet. This fault is but a small local segment of an extensive longitudinal fault which apparently extends in a general north-northeast, south-southwest direction along the west shore of Schroon Lake. It is quite possible Schroon Lake occupies a fault trough resulting from this activity. Evidence of faulting here is found in broken rock fragments from the

blasting operation which show slickenside faces coated with either epidote or red jasper, and occasionally an intermixture of both minerals. Additional evidence of this extensive faulting may be observed in the new road cut through pinkish gray granite 1.7 miles north of the epidote occurrence. Along the west wall of this cut there are several large slickenside faces exposed. Both the diorite stock and the adjacent granite formations are extensively broken up by jointing which is quite typical of these structural types.

Near the southern edge of the stock



Fig. 1

Lit-par-lit pegmatite (stringers of spotted rock) emanating from granite at left and invading granite gneiss at right of picture.

more rock blasting for the new road has exposed coarse pegmatitic, roughly parallel stringers of lit-par-lit type emanating from the large mass of adjacent granite. These extend horizontally into granite gneiss which lies in direct contact with the diorite stock. Some of the stringers are 50-60 feet in length, and from a few inches up to 2-3 feet in width. See figures 1 and 2. The granite contains hornblende as the principal component dark-colored mineral, and in the pegmatitic phase the hornblende forms large, coarse crystals up to several inches in length, and of corresponding width. Small allanite crystals are dis-

seminated sparsely throughout the pegmatite. Evidence of radial fracturing of the matrix rock around the allanite is not uncommon.

It is the writer's opinion that the lit-par-lit pegmatitic invasion was the primary cause of the epidote mineralization within the adjacent diorite stock. The actual amount of lit-par-lit structure exposed here would not seemingly be of sufficient extent to cause such mineralization but does suggest that with increasing depth the degree of pegmatitic intrusion of this type would be considerably greater. A correspondingly increased degree of sub-surface activity of this type



Fig. 2
Close up of lit-par-lit pegmatite showing large hornblende phenocrysts.

would most satisfactorily account for the epidotization processes within the diorite stock. The heat of the intrusion would cause a comparable rise in temperature within the diorite, and subsequent cooling would account for the fracturing of the rock and opening up channels for the ascending mineralizing solutions and vapors emanating from the pegmatite invasion. These high temperature solutions would attack the feldspars and the ferro-magnesian minerals in the diorite, dissolving some of the elements contained therein, and upon cooling crystalline epidote was formed.

Crystallization within the veins is for the most part complete from side wall to opposite side wall. There are three types of veins represented here. 1) Those with coarse crystallization completely filling the veins with occasional open vugs. 2) Those with coarsely crystallized epidote in the center of the vein, grading into fine granular epidote along each opposite vein wall, and, 3) veins completely filled with very fine-grained to

nearly massive epidote. Refer to Figures 3, 4, and 5.

The first type suggests slow cooling at depth. The second type is typical of sudden "chilling" of the circulating solution along the side walls of the vein, with slower cooling and crystallization of the remaining material in the center of the vein. The third type is representative of sudden cooling and quenching of the enclosed solution which precluded orderly crystallization of the component chemical elements. These three types apparently represent successively higher zones within the diorite, with type 1 indicative of depth, type 2 in the intermediate zone, and type 3 very near the surface of the exposure, or near open joint fissures in the diorite.

Some of the diorite near the wider veins of coarsely crystallized epidote is completely filled with large individual grains of the mineral. They are deposited along the foliated grain of the diorite and fill the interspaces between the ferro-magnesian minerals of that

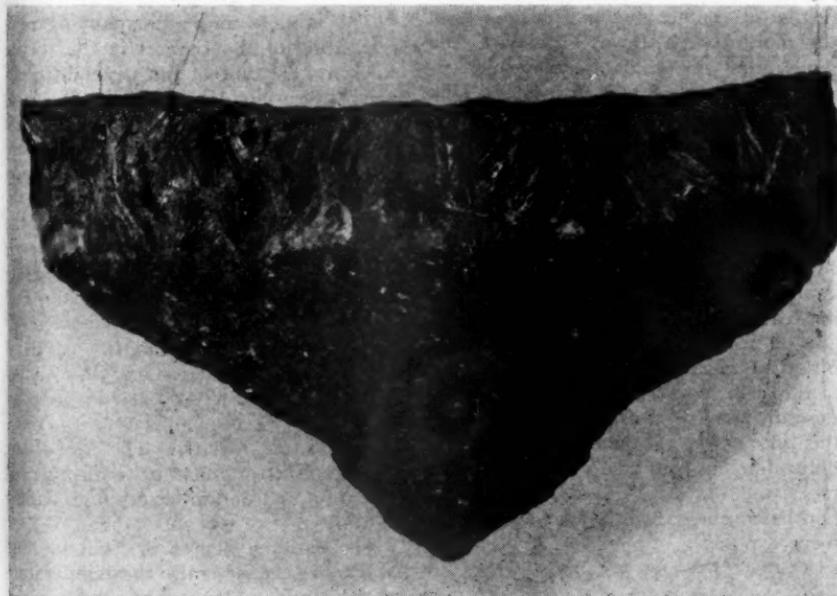


Fig. 3
Type 1, coarsely crystallized vein epidote. Width of vein 1 inch.

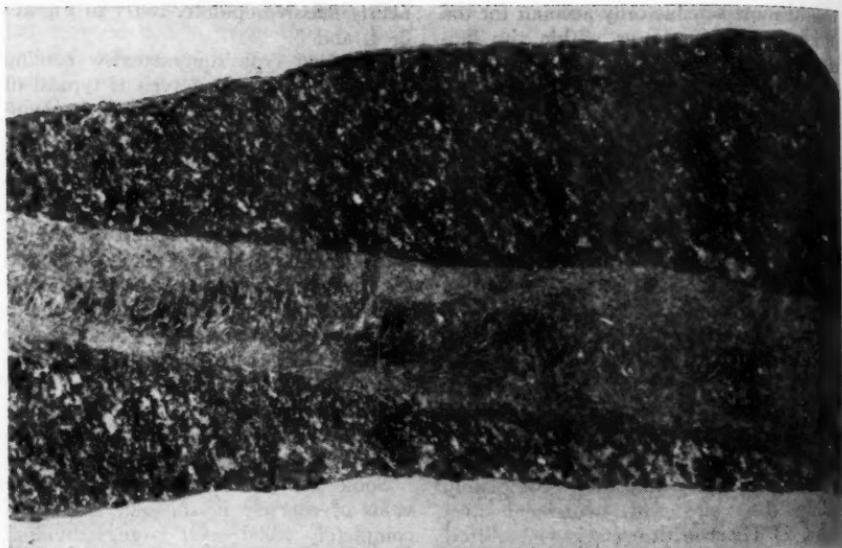


Fig. 4
Type 2, coarsely crystallized with fine granular vein epidote along marginal vein walls. Width of vein 1½ inches.

rock. This apparently represents a certain degree of contact metamorphism within the diorite when it was exposed to the penetrating mineralizing gases and vapors accompanying the invasion of the circulating solution, and which penetrated to varying degrees of depth beyond the confining walls of the open fissures.

The epidotization must be fairly well confined to this specific stock as¹ several rock analyses made from other gabbro stocks within the quadrangle do not reveal the presence of epidote in any degree. No visual epidote has been observed at any of the other rock cuts in this area, either north or south of the described occurrence. Quite obviously this does not mean that comparable epidotization has not taken place in those rocks, but only that if such mineralization has occurred it is not evident in the rocks exposed.

¹ Geology of the Schroon Lake Quadrangle —Wm. J. Miller. New York State Museum Bulletin #213, 214—1919.

SUMMARY

The epidote and accompanying mineralization of the fissures in the diorite stock are a result of the pegmatitic, lit-par-lit invasion of the area. The heat of the invasion caused subsequent shrinkage and fissuring of the gabbro (diorite) stock. The ascending high-temperature mineralizing solutions with associated gases and vapors attacked the feldspar and ferro-magnesian minerals along those open fissures, dissolving from them iron, aluminum, calcium and other chemical elements to become constituents of those solutions. As those solutions neared the surface, they cooled with an accompanying decrease in pressure, and the mineralization of those open fissures resulted. The veins are, therefore, a product of hydrothermal alteration and deposition from ascending solutions.

The extreme degree of local faulting would of necessity raise the temperature of the stock, and possibly a certain degree of fissuring, but would not have provided the quantity of mineralizing

solutions necessary to cause subsequent crystallization of the vein. The descending cool surface waters passing through those open fissures could not possibly have caused sufficient solvent action on the wall rock to effect such extensive secondary mineralization at this location.

ALLANITE CRYSTALS

4.3 miles north of the epidotized stock the new road is being cut through one of the heterogeneous geological rock structures previously mentioned as not being too uncommon in this region. This cut lies just within the southern boundary of Essex County, north of, and immediately adjacent to another gabbro stock. Here may be found unassimilated stringers of Grenville limestone grading into Grenville sedimentary schists and gneisses which still retain their original bedding stratification. The whole is intermixed with large masses of red-gray granite. The younger (latest) magma invasion in this rock exposure is a coarse pegmatitic material which has been injected between the fracture joints of the rock near the north end of the cut. This pegmatite is composed essentially of

pearl-gray feldspar with abundant hornblende and allanite as the prominent component dark-colored minerals, in association with considerable quantities of golden-yellow phlogopite mica flakes. It is not too difficult to understand how easily such phlogopite might be mistaken for gold by persons unacquainted with the unlike physical characteristics of each.

Allanite is a metasilicate containing various rare-earth elements such as cerium, didymium (mixture of neodymium and praseodymium) and lanthanum. It occurs here as typical tabular crystals enclosed within the feldspar. The crystals grade from paper thinness, to an eighth of an inch in thickness, and up to three inches in length. Around many of these crystals may be observed radial fractures extending into the matrix rock, as illustrated in Figure 6. Shaub states these radial fractures are ²⁾"due chiefly to an increase in volume of the

²⁾ The Cause of Radial Fracturing around some Rock Minerals—B. M. Shaub, ROCKS AND MINERALS—July-August 1951, Page 346.



Fig. 5
Type 3, fine granular to massive vein epidote.

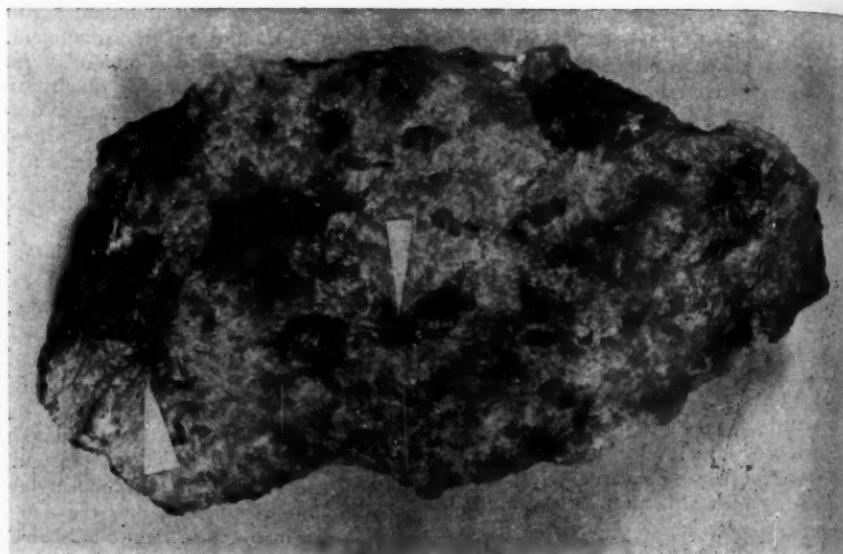


Fig. 6
Radial fractures around allanite crystals in lit-par-lit pegmatite.

core mineral while inverting from a crystalline to an amorphous structure with decrease in temperature."

The allanite as the core mineral here, retains its normal tabular crystal structure but under magnification shows evidence of alteration in varying degrees, from the characteristic lustrous black of unaltered crystalline allanite, to a dull, lusterless black material with no apparent crystallinity. The resultant oxidation caused by the circulating surface waters is evidenced by the deposition of ferric iron in the form of limonite on and around the allanite throughout the formation. The allanite is very feebly radioactive, although faint radiations are perceptible on a geiger counter. When freed from the matrix rock most of the crystals fall apart, owing in part at least, to the crushing pressure exerted by that rock when the crystals expanded during the inversion process. The pressure of that expansion must have been considerable because all of the feldspar impregnated with the allanite is correspondingly friable.

Lustrous allanite crystals are sparsely

distributed in the lit-par-lit pegmatitic material some 300 feet south of the epi-dotted stock.

MINERALS OBSERVED WITH THE VEIN EPIDOTE

Actinolite—Occurs as sharp, terminated rhombic prismatic crystals in vugs, and as included crystals within quartz crystals.

Albite—Occurs in vugs as small, sharply terminated transparent to white crystals in close association with the epidote crystals. Also found as bladed aggregates and in parallel growth. See Figure 7.

Apophyllite—As tiny crystals in cavities, showing differential lustre on basal pinacoids, associated with chabazite, datolite and heulandite crystals.

Arsenopyrite—As silver-white films coating intermixtures of crystalline hornblende and epidote. Also as granular material within the diorite.

Asbestus—As tufts of silky fibers on epidote closely associated with serpentine.

Calcite—Transparent to white material completely filling veins in association with crystalline epidote, chalcopyrite and malachite.

Chabazite—As microscopic crystals in cavities with apophyllite, datolite and heulandite crystals.

Chalcopyrite—Occurs as included masses completely enclosed within the coarsely-crystalline epidote. Apparently crystallized contemporaneously with the epidote. Where exposed to post-crystallization circulating surface waters, malachite has formed over and around the chalcopyrite.

Chrysocolla—As microscopic porcelain-like masses filling the interspaces between epidote crystals near chalcopyrite.

Datolite—As microscopic crystals in cavities with apophyllite, chabazite and heulandite crystals.

Epidote—Occurs as coarsely crystallized vein material in fan-like aggregates. Terminated crystals and groups of crystals occur in vugs within the veins closely associated with albite crystals. One especially fine single crystal $\frac{1}{4}$ " by $1\frac{1}{2}$ " was noted in quartz. Also as coarse grains disseminated in the diorite near the mineralized veins, and as fine-grained to solid masses along the

vein side walls. In some instances the massive epidote completely fills the veins. Some of this material takes a very fine polish.

Also as small radiated crystal tufts of a dirty brown to black color associated with quartz crystals in a chloritic vein cutting granite gneiss about 300 feet south of the diorite stock carrying the coarsely crystallized vein epidote. This epidote has a high refractive index which evidently indicates a variety rich in iron. Occasionally some of the needle-like crystals are enclosed within the base of quartz crystals.

A similar occurrence has been noted by the writer near Warrensburg, New York. Here the epidote occurs both as radiated tufts of brown-black color, in and around the bases of quartz crystals, and also as beautiful, lustrous brown crystals enclosed within transparent quartz crystals. The included brown crystals are indiscriminately scattered throughout the quartz as sharp, single crystals. The terminal faces of some of them penetrate the external facial planes of the quartz crystals.

Choice specimens of brown epidote crystals enclosed within quartz crystals

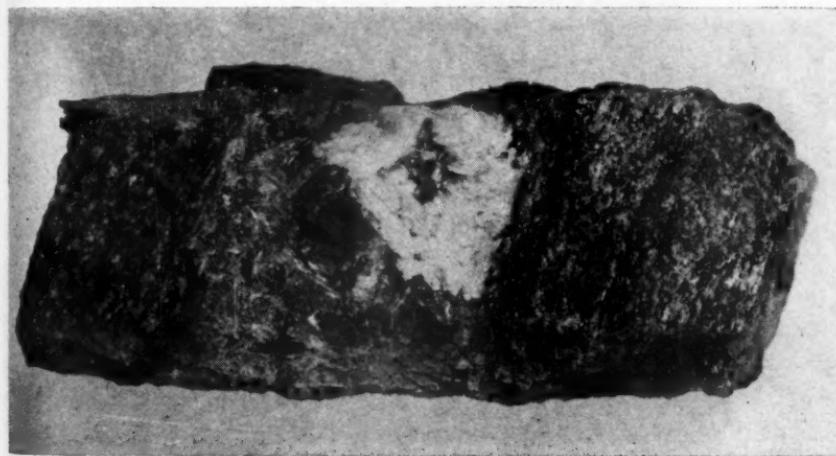


Fig. 7

Albite bladed crystal aggregates (white) surrounding epidote crystals (dark) in vug.

are not common here, but those noted are very beautiful. They represent a choice combination of these two minerals.

Heulandite—As tiny coffin-shaped crystals in cavities associated with apophyllite, chabazite and datolite crystals.

Hornblende—Occurs as large black intergrown crystals in the coarser diorite near the veins. Also as greenish-gray crystals and crystalline material in vugs with epidote.

Malachite—Occurs as green films coating chalcopyrite. Also as microscopic acicular green crystals on calcite around chalcopyrite.

Plagioclase—As light grass-green crystal grains along the vein walls and in the coarser diorite as sharp crystals. The largest crystal noted by the writer is $\frac{3}{4}$ " by 1" showing characteristic twinning striae on c(001) cleavage face. The mineral is probably oligoclase.

Prehnite—Occurs as sharp distinct individually terminated crystals and as groups of intergrown tabular crystals in veins. The color ranges from colorless to white. This material is very rare at this occurrence. The prehnite veins are invariably filled with crystals growing towards the center of the vein with many of the crystal terminations interlocking in the center of the vein. In these veins epidote is a minor, to rare constituent mineral. These crystallized colorless and white prehnite crystals are most unusual. See Figure 8.

Pyrite—Noted as microscopic cubic crystals formed along joint seams of the diorite. Also as microscopic pyritohedrons and granular material within the coarser diorite and as thin platy material interlaminated with fibrous hornblende.

Quartz—Occurs as small, sharp, water-clear crystals in vugs occasionally in-

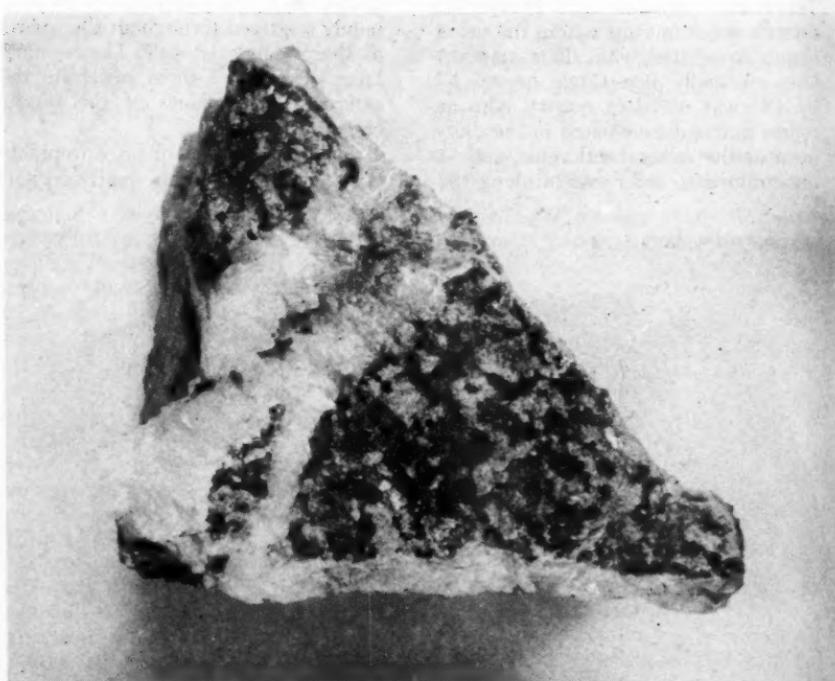


Fig. 8
White prehnite crystals in vein in diorite.

tergrown with actinolite. Also as milky quartz along the vein side walls.

Serpentine—Occurs as powdery blue material filling some veins and coating the foliated structure of the diorite immediately adjacent to those veins.

Tourmaline—Microscopic blue-green acicular crystals occur completely enclosed within quartz along the side walls of the vein. Apparently represents one of the first minerals to form within the veins.

OTHER MINERALS OBSERVED IN THIS AREA

Allanite—As black tabular crystals in the pegmatitic material south of and immediately adjacent to the epidote occurrence, and also 4.3 miles north of the epidote occurrence in pegmatitic material.

Epidote—As globular aggregates of brownish-black acicular crystals in a chlorite vein cutting granite-gneiss about 300 feet south of the diorite stock containing the epidote. Also near Warrensburg, N. Y.

Phlogopite—Abundant as tiny golden-yellow crystal flakes in the pegmatitic material 4.3 miles north of the epidote occurrence.

ACKNOWLEDGEMENTS

Mr. Wm. Hart first called the writer's attention to the occurrence by referring a specimen of epidote for identification.

Mr. Arthur Flood for the photographs illustrating the lit-par-lit pegmatitic structural relationship to the occurrence.

Mr. Ralph Lapham for the photographs of the individual mineral specimens.

All of these men are active participants in the mineral classes and programs of the Glen Falls, New York group.

Mr. David Seaman, and Dr. Brian Mason, Specialist and Curator respectively, of the Department of Mineralogy and Geology in The American Museum of Natural History, New York City, for their kindness in identifying the serpentine, greenish-gray hornblende, prehnite and radiated epidote crystal tufts.

Mustn't miss a copy!

Editor R&M:

My husband said this morning, "ROCKS AND MINERALS hasn't come. Did you renew the subscription?"

Here's your belated check. What a racing form is to an addict, ROCKS AND MINERALS is to

Philip C. Foster
Worster Road, R.R. 1
Eliot, Maine

He mustn't miss a copy. I really thought I'd renewed and subsequent notices were slip-ups at our office. We get them often with another slip saying if we've renewed, ignore it please. We always have and do. But ROCKS AND MINERALS is not a Curtis Publication so when you issue a reminder it is to remind. I'm sorry. I'm appalled.

Della W. Foster
Worster Road, R.R. 1
Eliot, Maine

July 1, 1957

ROCKS AND MINERALS

GEMSTONES

I am fond of tourmaline
With all her various hues.

Turquoise rates quite high with me
When in the mood for blues.

Diamonds leave me cool and calm
(Except those in my saw.)

Zircons have a strong appeal
If cut without a flaw.

Agates hold me in a spell.
Opals fascinate.

Bloodstone, with its flecks of green,
Near the top does rate.

I like topaz, rubies, jade,
On my sweetheart's hand.
Sapphires, garnets, emeralds—
All are simply grand.

But if I had one choice to make
And only one could buy—
It would be that lively gem—
Chatoyant TIGEREYE.

Fran Schiller
Luke, Maryland

STRONTIANITE AT SCHOHARIE, NEW YORK

By Ralph C. Gosse

Albany, New York

The element strontium is widespread in the rocks and waters of the earth's surface, but only two minerals are of commercial importance. Celestite (strontium sulfate) which by reason of its more common occurrence is considered to be the most important commercial source. Strontianite (strontium carbonate) is generally more limited in commercial supply.

Before the year 1914 most strontium compounds were imported from Germany; however, during World War I, when German supply was cut off domestic sources were sought out, and facilities devised for processing strontium minerals imported from the United Kingdom. Today the main supply of strontium used by our country is supplied from sources in the United Kingdom, and Mexico.

Domestic production of strontium has been very small, and sporadic; nevertheless, large and commercially important deposits exist in our country which have been estimated at several million tons.

Probably the best known use of strontium is in the manufacture of fireworks, signal flares, and pyrotechnics which require a very brilliant crimson red color imparted by strontium. Other important uses include strontium greases, ceramics, medicine, depilatories, strontium alloys, desulfurizing steel, with many more specialized uses.

Because of the low cost of labor in foreign countries supplying strontium, it has discouraged operations to develop domestic sources.

The current prices paid for strontium metal are from about \$7-\$35 per pound depending on the quality.

Strontianite occurs in sedimentary type rocks in acicular, or sharp spear-shaped crystals similar to aragonite. Also massive, and in fibrous veinlets. Fracture is uneven, and is brittle. The hardness

ranges from 3.5-4. Color if any is often very light green, gray, yellow, pink, brownish, white and colorless. Composition—strontia 70.1%, carbon dioxide 29.9% with variable amounts of calcium.

An occurrence of strontianite, which is a very likely commercial source, is located in a cliff near the top of Terrace Mountain, located a few miles north of the village of Schoharie, Schoharie County, New York.

When the vein was discovered it was believed to be a compact calcite, but it was soon discovered that the snow-white massive mineral was strontianite of very high quality.

During the late 1800's it was mined for a short period by the McKesson & Robbin's Company. A tunnel was driven into the largest vein which was several feet in width. The strontianite ore was lowered down the side of the mountain by large buckets which resembled ash cans on a pulley and cable similar to a ski-lift. The ore was then loaded into horse drawn carts and brought to Schoharie to be shipped by railroad to New York City for processing.

It is not known what quantity of ore was removed or why the operation ceased, but it was not from lack of ore reserve, which seems to extend through the mountain as large fissures in limestone.

The writer has visited this locality on several occasions during the past few years collecting the massive strontianite from the exposure on the cliff, but lacking the proper equipment to venture into the mine itself. During the winter months of 1955-56 the overhang of limestone fell directly in front of the entrance burying it under several tons of rock, now making it impossible to collect inside the mine.

Massive strontianite can still be collected from the rather wide vein near the mine entrance. Although strontianite

crystals were found here in geode-like vugs, they are now very scarce at this locality.

Strontianite and celestite has been reported to occur in the same general area and adjoining towns in smaller quantity.

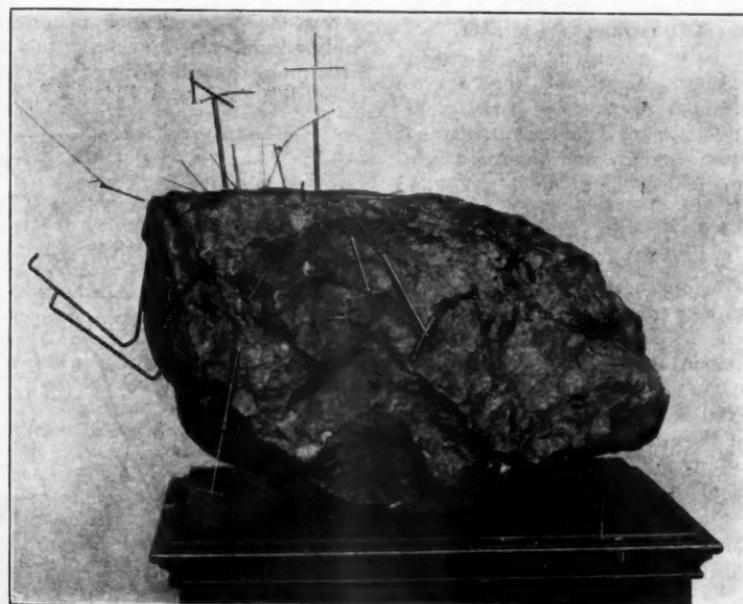
There are several approaches to reach the strontianite locality, but the easiest to locate would be in following these directions: Proceeding north on highway #30 from the village of Schoharie, and turning west on highway #7 for a distance of $\frac{1}{2}$ mile. At this point a small dirt road on the left hand side of the road will be seen. Follow this road which ends after 1 mile from the turn off on highway #7. The rest of the route will now have to be made on foot along the base of the mountain to a very small stream which is about $\frac{1}{2}$ mile walk from the end of the road. Continue to follow the stream up the side of the mountain,

it is a good 1,000 feet to the mine, where the stream conveniently ends directly in front of the strontianite vein, and the old mine entrance only several feet away.

The small stream which cascades down from the mine is filled with tufa which deposited from the mineral bearing water. In places rocks are covered with several feet of tufa, looking like giant sponges. Some of this tufa is slightly fluorescent, in some are imbedded plant life which was trapped and preserved.

Near the mine a beautiful view of the Schoharie valley can be afforded at this height, and gives one an idea of the great size of the glacier which cut out the valley, carving a masterpiece of nature.

Permission to enter the property should be obtained at the last farm house at the end of the dirt road adjoining the farmed fields.



Large Natural Magnet

The above powerful lodestone, weighing more than 400 pounds, is on exhibit in the Clarence Buckingham Hall at the Chicago Museum of Natural History, Chicago, Ill. This huge mass was found in the Wasatch Mountains in Utah.

A lodestone is a variety of magnetite which has the property of attracting iron and other metals.

COLLECTING AT SOUK EL ARBA, MOROCCO

By John F. Jedlicka

3536 E. Fairmount Ave., Baltimore 24, Md.

The rainy season, here in Maroc, has been very poor this year. However, it did manage to rain on the afternoon of January 4th, thus cancelling the latter part of our mineral excursion to Souk El Arba.

The Souk El Arba district is located 46 miles north of Port Lyautey (Kenitra) and is easily reached by means of the Tangier highway.

This area is worth visiting because both sedimentary and igneous formations are abundant and one can expect to obtain a variety of specimens.

A number of places were explored there during 1950 by the French, who hoped to set up sources of road filling material. However, there wasn't enough suitable rock in any one place to justify commercial quarrying operations.

Our party consisted of Monsieurs Jules Agard, Chief of the Service D'Etudes des Mineraux, Charles Peltier-Doisy, Canon Gaudetfroy, 80 year old priest-geologist and the most eminent French geologist in Maroc, and myself.

One type of rock, particular to the area is syenite. The syenite is much like granite in appearance but differs, containing little or no quartz, has both potash and plagioclase feldspars present and contains a greater percentage of ferro-magnesian minerals. It is often considered as an uncommon rock because it does not occur in large masses as granite usually does.

At Souk El Arba the minerals composing the syenite were affected somewhat during its cooling and consolidation and to distinguish it from the usual syenite, it was given the name epi-syenite by the French geologist, Alfred Lacroix.

Our main objective was to gather as much epi-syenite as possible for study purposes at the geological survey. As

for myself, I hoped to find some interesting micros.

We visited three of the exposed trenches before stopping for lunch and managed to secure a good quantity of the material. I managed to find a few micros of calcite and epidote in vugs in rhyolite.

Then the rains came and abruptly terminated the day's activities.

On March 31st Monsieur Pelletier-Doisy and I again returned to one of the trenches and worked over some of the dumps.

During the last few months Canon Gaudetfroy has constantly been working on the material collected and to date has found micro crystals of epidote, sphene, magnetite and fine micro crystals of zircon. Although this material was studied somewhat previously, this is the first time zircons have been reported as occurring in this area. They are deep



Map showing location of Souk El Arba, Morocco
(not to scale)

red in color due to a coating of iron oxide and should make excellent micro-mounts.

If possible, we will visit the Souk El Arba area again in the near future to have a try at collecting crystals of twinned dolomite and fluorite and native sulfur that are known to occur.

Also on the agenda is a return visit

to Oulmes for cassiterite, beryl, and wolframite.

Editor's Note: Mr. Jedlicka is with a U.S. Naval Communications station located in Morocco. See his previous article, "Collecting Minerals in Morocco," Jan-Feb., 1957. R&M, pp. 3-5.

Maroc is the French word for Morocco.

2 suggestions from Florida!

Editor R&M:

We would suggest that visiting rockhounds bring surplus trades along when they go traveling. Many times collectors come here and are so surprised that they have found a rockhound—they tell you of all the boxes of fine material they have at home and if only they had known they could have brought some along.

Several times we have had the happy experience to have rockhounds come visiting and their opening introduction has been something like this:

"I have brought you a little sample of rocks that come from our locality."

We have gotten flint from Ohio, geodes from Iowa, agates from Oregon and most any collector is more free with his time and information when so greeted.

Another suggestion we would like to make is that collectors try and help novices in a certain state or area. We have decided that we'll try and send a parcel to all Florida novices. So far we have had only one novice who failed to write when he received the parcel.

Have wondered how many folks send to the average novice and if many of them are encouraged by these gifts. We for one would appreciate and enjoy the results of a little research on this subject.

W. R. Olsen
New Port Richey, Fla.

Aug. 1, 1957

Editor's note: Mr. Olsen's suggestions are good and we hope they will be carried out by readers.

Miami Club assists Boy Scouts!

Editor R&M:

This is the text of the letter sent to Chalmer L. Cooper, Chairman AGI Boy Scout Committee:

"The Miami Mineralogical and Lapidary Guild is putting forth special efforts for your October program with a lecture by Mr. Walter Blackwell on South Florida geology being given to the Scout Masters. The lecture with slides will familiarize the Masters with local topography. The membership is preparing a kit of South Florida minerals to be given to each Boy Scout Troop. Field trips are planned for the Masters and Scouts plus craft projects using rocks and minerals. We feel that our program may be of value in helping the interested youth in making Geology a profession.

"Since the Guild's beginning we have given free classes in Rocks and Minerals to the youth of this county at the Junior Museum of Miami. Boy Scouts have earned their Merit Badge in Geology upon completion of this class.

"Dr. Virgil Sleight, head of the Geology Dept. of University of Miami, is giving us his full cooperation as a member of our Guild."

We hope this program published in ROCKS AND MINERALS will inspire other rock and mineral clubs to assist in Boy Scout Geology Month in October.

Aaron Spector
Chairman Youth Education
1787 N. Bayshore Dr.
Miami, Fla.

Aug. 9, 1957



WOMEN'S CORNER OF R&M

Conducted by Winnie Bourne
c/o Rocks and Minerals

Box 29, Peekskill, N. Y.

With this Sept.-Oct. issue of R&M we are again pleased to print some very fine letters received from our readers of this Corner.

They are all very interesting and I'm sure we all get some enjoyment from reading about the experiences of others among our sex.

Everywhere we go nowadays the presence of women in ever increasing numbers is noticeable among the groups collecting minerals everywhere. More youngsters are noted also. This all brings about more family unity through a common interest and provides a family topic to discuss when at home again. Mother, son and daughter are picking up the knowledge that only dad knew before and always was "Greek" to them.

The inroads into mineralogy by woman is tremendous as of late. Why many young women are even allowing for a few days of their vacation time to go prospecting, renting geiger counters and jeeps and heading for the hills over yonder. To them, Good Hunting!

And now—on with the letters.
Winnie

From Ohio!

Dear Winnie:

I thought that you might be interested in how I became a Rock Hound. For several years now my son Glynn, who is 11, has been gathering "pretty stones" and coming into the house from his play with his pockets full of aggravating pebbles. It got so bad that on wash days I had a rock pile in the middle of the floor. To make matters a little worse; when he got a little older, he would take his wagon and start down toward the creek a short distance from where

we live. In his wagon, I always found boulders I didn't see how he could possibly have lifted. But to him a stone has always been a mysterious work of Art. Then my mother and dad, Mr. and Mrs. Lloyd Decker of Findlay, and a friend Mrs. Allen, founded the Hancock Geological Society and I was sunk. My son wanted to go and the only way that he could attend was for me to go along with him—Zing! It bit me!!

Now I think I'm even worse than Glynn, as I spend every free moment away from my household duties hunting—if it's no more than going out behind our barn and looking in the farmers field. I have never had so much fun, and felt so healthy. I guess we not only teach our children, but we can also learn a few things from them. Rock can work as a wonderful medium, between friends, in exchanging with people from all over the United States. It seems as though everything on Earth has a purpose even down to the smallest pebble. Keep up the good work, Winnie—I wouldn't miss your column for anything.

Mrs. Carole Huntley
W. Market St.
Van Buren, Ohio

May 13, 1957

From Canada!

Dear Winnie:

I have just received my first copy of R&M on my subscription. I have read it from cover to cover and am well pleased with it.

I first got to know of your magazine in Seattle, Wash. Last spring 6 of us rockhounds visited Seattle and while in a rock shop I found some copies of R&M on a table. The owner gave me

5 copies so by the time I read them all I knew was that R&M was a must for me. I have loaned them out to fellow-rockhounds and they enjoyed them also.

We do most of our mineral hunting on the Fraser River during low water which starts about October and lasts till the middle of May. We have found some beautiful specimens. Last spring, we found 200 lbs. of nephrite jade, not too much black. Then early this fall we found 180 lbs. of dumortierite (some call it purple jade). We found also lots of agate and rhodonite.

Would you please add my name to the Visiting Rockhounds Welcome? I can't think of a more enjoyable visit than from a rockhound from some other part of the world.

Thank you for your wonderful magazine and especially for your most enjoyable Corner.

Mrs. E. R. Willis
17-3rd Ave.
Chilliwack, B.C., Canada

March 31, 1957

From Michigan!

Dear Winnie:

Have been an avid reader of R&M for three years and have been reading your Corner since it was first published. What a wonderful thing to do for us women and how much I enjoy it.

My husband was the first to become interested in R&M while I was just curious about the pretty stones. Then when he got his machines and started cutting and polishing, never was I more surprised to see the beautiful colors come out.

Now as soon as I get home from work, off comes my uniform, on goes my jeans and into the rocks go I.

We have made earrings, necklaces, brooches, cuff links, tie bars and such. I have sent to three different places for our mounts and findings but still am looking for more.

Now for a favor from you, please! I have written to many of our advertisers from R&M and have been disappointed so many times. What I have been

trying to find is a list of companies which sell jewelry findings and mounts. All I have found were three or four. I have their catalogs but have not found what I wanted.

We have seen some compacts, pill boxes and such with cut agate and they just dazzled me. I decided we must have some of those, they are different. Could you please either send me a list of places that make jewelry findings or print them in your Woman's Corner. There might be others like myself who are having the same trouble.

Thanking you in advance for your trouble, I am, a very thrilled and determined Rockhound.

Millicent Redwitz
1006 N. Jackson
Bay City, Mich.

June 12, 1957

P.S.:—Loads of luck to your Women's Corner!

(Your request for a list of jewelry findings manufacturers is a worthy one but unfortunately I am unable to help you—this is out of my line.

But you need help and you have my sympathy. Perhaps the best way to help you is to insert your plea in our column, "Information wanted by readers." Surely some of our many advertisers—those who carry many varieties of findings, etc.—will contact you with their catalogs, price lists, letters, etc.

Thank you for your nice letter.
Winnie)

From Pennsylvania!

Dear Winnie:

How did I get to be a rockhound? Well, I was always fascinated by treasure hunting stories and I read everything I could find about lost and found treasures. I suppose that got me interested in collecting coins. Some few years ago I read in *Colliers* about the cow pasture where diamonds could be found. I just could not forget it and thought of what a thrill it would be if I could only find something like that. I kept the magazine 2 or 3 years, then it was lost

or misplaced in moving. But I didn't forget and hoped I'd get a chance sometime to go there. I still hope to take a trip to Arkansas where the diamonds are found before too many years pass by.

Then I added books on gemstones to my reading. When I saw the name Rocks and Minerals in one of the books, I sent for a copy and by the time I finished reading it I knew that was the magazine for me.

Before I read this copy of R&M, I didn't know there were mineral clubs, where gemstones could be found, or that rocks could be turned into things of beauty. Being born and brought up in Florida, I had seen very few rocks.

After getting R&M, I couldn't wait to go out and start rock hunting. After that I was picking up rocks everywhere. My husband was sweet about it and waited calmly for me to get tired of hammering away at every rock I found. Soon there were rocks upstairs, downstairs, in the basement, on the window sills. Then I built shelves (Oh, I'm a carpenter, too) for some of my choicest specimens; some rocks I put in boxes to keep (I can't throw one away). After about a year of this, I guess my husband thought, "If you can't beat them, join 'em." So he got himself a rock hammer and rock bag and now we are both happy. He picks up about as many rocks as I do but we are still very much beginners in rock collecting.

Mrs. Ammon Schwartzbach
2239 Logan Street,
Harrisburg, Penn.

July 13, 1957

Gained many new friends!

Editor R&M:

I would like to thank you for the 'Collector's Column' and 'Visiting Rockhounds Welcome' column in R&M. Through these two features I have gained many new friends and fine mineral specimens. Could I please have my name added to the 'Collector's Column'? I am 16.

Philip Presley
110 N. Osborne Ave.
Margate City, N. J.

Aug. 19, 1957

Gets lots of good out of R&M!

Editor R&M:

Again it is time to forward my annual moiety for R&M. I thank you for indulging me in this manner, otherwise I would be deprived of the magazine. Of true friends I have many and they are as good as gold. I daily thank an allwise Providence for their interest and many kindnesses. As the poet Sherman puts it:

"It is my joy in life to find
At every turning of the road,
The strong arm of a comrade kind
To help me onward with my load.
And since I have no gold to give,
And love alone must make amends,
My only prayer is, while I live,
God make me worthy of my
FRIENDS".

I still get a lot of good out of old R&M. I study each number with great interest, especially the World News on Mineral Occurrences. Have added no end of interesting bits of information from them.

Personally, I find myself under the necessity of curtailing my outdoor activities considerably. Will be 79 years old next month, and the infirmities that are attendant upon advancing age are already making themselves apparent. However, my interest in minerals and geology in general seems to intensify rather than diminish.

Frank L. Fleener
1415 Hosmer St.
Joliet, Ill.

July 26, 1957

Editor's note: The above poem is of special interest to us because its author, Frank Dempster Sherman, was born in Peekskill, N. Y., and spent his boyhood here—our home town!

Interested in Lapidary

Editor R&M:

I am primarily interested in the lapidary end of your magazine and have started a scrap book in which I have indexed all articles by Capt. Owens and Com. Sinkankas with reference to gem materials, polishing, etc.

E. P. Hahn
103 Pease Ave.
Verona, N. J.

July 8, 1957

THE AMATEUR LAPIDARY

Conducted by Captain George W. Owens

Hq. Sq. 384th Bombardment Wing, Little Rock Air Force Base, Jacksonville, Arkansas

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all

BERYL

The beryl family of minerals gives us some of our most beautiful and lovely gems. This family is well represented in nearly every gem collection in either one or more of its varieties, yet its principal variety, emerald, is often lacking.

Beryl "works" readily and is a joy to polish. Some of our most beautiful museum pieces are cut from beryl. Large stones are possible as it is found in crystals of extremely large sizes; however, very little found is of gem quality when you consider the total amount mined each year for processing into beryllium.

While beryl is found in these large sizes in some of its types, emerald is never found in large XLS. In color, emerald is a deep velvet green to a light grass green. Good emeralds have a definite velvety body appearance. Unless the beryl grades into this type and color it should be classed as pale green beryl and not as emerald. The light and pale tints have a much lower value and are more plentiful. Emeralds have much less brilliancy and fire than most other gems. The quality and even distribution of its color is of prime importance. Stones that are too mossy or extremely flawed are not desired. As a rule, in dealing with gems of emerald, you will find that the better color, the less perfect the stone. Flawless emeralds are almost unknown. A good guess would be that of all the emeralds ever produced, less than 1% was of fine quality. But, oh, that 1%! Most emeralds are flawed by cracks and inclusions. Inclusions in this material are many and varied, running from mud to mica and from water to small needles of tour-

maline, all detracting from the value of the gem, unless they are in such form as to produce an "eye" emerald or even more rare, an asteriated stone. A star emerald is one of the world's really rare gems—less than a half a dozen being known.

Fine quality emerald is much more expensive than a diamond of the same weight and finest quality, which is as it should be because such an emerald is infinitely more rare. The fine emerald-green hue of the quality emerald seldom occurs in any other gem stone.

Emeralds have been recovered at several places in the world. Colombian locations are the best known of recent times. These emeralds are some of the finest ever seen and while the mines are government controlled as of this writing, it is possible, but most expensive, to obtain rough for faceting.

The Russian emeralds are more yellowish than those of Colombia and are seldom seen on our markets although the author did obtain a few grams of rough several years ago.

The Brazilian emerald, found in the Bahia district, are remarkably free from flaws but most of all this material should be graded as green beryl due to its pale color.

Australia produces some emerald, but rarely of gem quality, and with but little depth of color, it is not a factor in the gem trade. A few good specimens have come from here, however.

The United States produced (please note the past tense) several good crystals of emerald in the heyday of the mines in North Carolina; however, nothing but poor specimens have been mined in the last few decades. While several "leads" are known in this area, production of

gem material would be most doubtful and certainly most expensive.

South Africa (Transvaal) produces some emerald of fine quality but most stones recovered are dark and dull.

Austria in the Salzburg Alps region has produced small emeralds and is capable of more production.

Emeralds may be found at other locations but, if so, are unknown to the author with exception of the old Egyptian mines at Jebel Zabara. This location no longer produces anything, but it would be a most fertile field for a historic novelist. The area abounds in tragedy, mystery, and romance.

Emerald is generally cut in the step cut. In fact, this style of cutting has become almost universally known as the "emerald cut." Baguette and cabochon cuts are also used but one seldom sees the brilliant cut used. The XLS lend themselves to the step cut with a very minimum loss of weight.

Due to its low specific gravity, emerald is a "large" stone, that is to say, a 1, 2, or 3-carat emerald is much larger in size than a 1, 2, or 3-carat diamond.

Beryl belongs to the hexagonal system and is usually a simple prismatic form. Unlike nearly all other gemstones, emerald is never found in gem gravels but is mined from a matrix of primary deposits. It has been found in altered dolomite, mica schist, and calcite.

Be careful in your treatment of emerald because despite its hardness of $7\frac{1}{2}$ to 8, it is not tough. Girdles should be extra thick and every care should be used in setting. It would be a pity to cut a beautiful gem of this material only to break it in the mounting.

There are synthetic emeralds on today's market including everything from glass, through doublets or triplets of quartz, dye, and beryl to actual man-made crystals. The man-made crystal is the most interesting. In 1935 a German company (I. G. Farbenindustrie) announced the production of synthetic beryl and displayed specimens and cut stones. These had the typical

inclusions of true beryl but had a much lower birefringence (about .0033).

Recently an American-made synthetic has been produced. Both rough and cut stones are sold generally and are available to all who care to cut synthetics. The cost is much less than that of natural emerald. To determine this material from the natural stone, the only easy test is fluorescence. The synthetic fluorescing a very strong orange-red to a definite "brick" red.

To determine natural emerald from doublets or triplets one would use the usual tests for doublets such as using a strong glass or loupe, which should make visible the bonding lines, especially if the stone and loupe are under water or a high, but clear, refractive index liquid such as a mineral oil. Most bonding lines are found to be just below the girdle. A good test for doublets is to place them on a sheet of white paper, table down, and view from above. Often a red or pink circle will be seen around the outside edge of the stone when viewed in this manner. This is a positive indication of a doublet. Some doublets and even triplets are made from genuine emerald, which are probably selected because of its small thickness or flaws. These "assembled" emeralds are still correctly termed doublets.

Not all beryl is emerald. So let us take a look at some of the other varieties of this fabulous family! These varieties may be listed as shown on top of next page.

Unlike emerald, aquamarine has been found in exceedingly large crystals that were free of flaws. In aquamarine, the deeper and more pronounced the blue color, the more valuable the stone. Gems from the Orient tend to be of deeper color than the South American variety. Aquamarine is well suited for brooches and rings. Large stones are used for this purpose. Aquamarine is sometimes carved as intaglios or cuvettes. Several wonderful samples of this type of work are on display at the Smithsonian Institute in Washington D.C. One large oval intaglio is especially beautiful. The

VARIETIES OF BERYL

Color	Name or Trade Name
Light blue	Aquamarine or Siberian Aquamarine
Light greenish-blue	Aquamarine or Russian or Uralian Aquamarine
Dark blue	Aquamarine or Madagascar Aquamarine
Bluish-green	Aquamarine or Brazilian Aquamarine
Greenish-yellow	Chrysolite Aquamarine
Golden yellow	Golden Beryl (rare)
Yellow and brown	Heliodor
Light reddish purple including pink, lilac, rose, etc.	Morganite
Deep rose	Madagascar Morganite
Orange-red	Morganite
Off colors of yellow, green or brown	Beryl
Colorless	Goshenite (rare)

other varieties of beryl have also been used for carvings. In the author's collection is one heliodor intaglio of fine workmanship and beauty. It was once a part of the Pendorf collection and was acquired through the good graces of Mrs. Pendorf.

One interesting feature of large stones of the beryl family is that you will often find that they have been cut with a great many "extra" facets. These facets enhance the color and beauty of the stone. The author recommends that such extra facets be placed with care so as not to deviate from the accepted angle of cut.

Aquamarine beryl may readily be obtained from most dealers and the cost is reasonable. Everyone who facets should try a hand at cutting one of these gems. If you do no facetting, by all means, try cutting a cabochon from this material. Break away from the straight agate cutting routine and get a few grams of cab grade aquamarine. You will be pleasantly surprised at the ease of cutting and more than pleased with the high polish. Any such effort should reward you with a fine stone to add to the collection. The author has not experienced any difficulty in either cutting or polishing beryl and would say that it is a "routine" operation, yet one which will most certainly add to your cutting pleasure. Good deep blue aqua-

marine has value so do not treat this material too lightly.

In obtaining rough materials you will find that aquamarine and morganite are readily available. Heliodor is much harder to find but may be obtained from time to time. An order to your dealer should bring results. Do not expect to get any golden beryl in rough form unless you are willing to pay a premium. In fact, even faceted stones of true golden beryl are rare. As for goshenite—unless you are willing to pay a very pale yellow is colorless—well, it is going to be a hard task to find a faceted stone in this material and just do not bother to look for rough because you will not find it. Once in a great while a little rough does appear but is sold as soon as it arrives. You may place a standing order for this with several firms, but if you insist on true goshenite—sit back and expect to wait a long time.

All beryl cuts with ease. The angles used by the author are: $40^\circ/43^\circ$, the first listed being for the crown. In polishing, Linde A with a tin lap is used to good effect. Cerium oxide with a Lucite lap may also be used or 6400 diamond compound will give a nice polish. The author also once polished a small aquamarine using a hard wood lap and Linde A. A slight rounding of the facets was noted otherwise this

method worked well. A tip in polishing the tables of extra large beryls is to do the cutting on the facet machine but go to your cabochon unit and polish the table on hard felt with Cerium oxide. The subsequent cutting of the remainder of the facets will eliminate any slight roundings that occurred at the table's edge. Some of the largest faceted aquamarines on record were polished in this manner. It works equally well on most other large stones.

Beryl, other than emerald, is found at a great many places:

United States: California, Connecticut, North Carolina, Maine

California: Morganite, brown beryl, golden beryl, light blue aquamarine and goshenite.

Connecticut: Light blue aquamarine

North Carolina: Light green aquamarine

Maine: Light blue aquamarine

Russia: All colors. Madagascar, the country of beryls, all colors, and especially the vivid deep blue aquamarine.

India and Australia have some production but probably the largest producer of beryl is Brazil. Production is centered in the Minas Geraes district and some of the world's largest gem crystals come from there. A non-important location is Korea but it is believed that this country could become a producer of this and other gem material.

A tray of beryls is an asset to any collection of faceted stones, even a single representative of each of the varieties of beryl is an achievement, especially so if cut by the collector. How many of you have a beryl in your collection? How many have all the types of beryl represented? Please note that all of the rare types are found right here in these United States. If you need any golden beryl, morganite, or even a goshenite, you might try to see if Martie and Joe Stetson of Stetson's, 2356 Ridgeway Drive, National City, California can help. Martie facets a lovely stone and Joe does some of the most beautiful goldsmithing in these United States. If anyone has facet grade

rough or cut stones in San Diego County beryl, the Stetsons will have it. A letter to them may be the means of you obtaining the one stone you need for your collection.

Parsers' of 15 West 44th St., New York City carry a most complete line of Brazilian materials in all grades and will do their utmost to send you rough to your specifications. They have been in the gem business for several generations and have established connections which work to your advantage in obtaining hard to find types of fine cutting materials. They publish a list from time to time. Why not drop them a line and ask for their current one?

Beryl has a hardness of from $7\frac{1}{2}$ to 8. While the toughness of emerald is poor, aquamarine and other varieties are more tough and do not need the thick girdle that emerald requires. Refraction of beryl goes from 1.570 to as high as 1.598. This widespread probably is caused by the different coloring agents. It is uniaxial negative in optic character with a low (.014) dispersion. The small dispersion and lack of brilliancy separate beryl from most colored stones. A refractometer test is usually sufficient to accurately separate beryl from other stones. In appearances aquamarine is especially difficult to separate from blue topaz but a SG test or the refractometer separates them with ease. Synthetic spinel or sapphire is often sold as "aquamarine" or as "synthetic aquamarine." The usual tests between these minerals will separate them.

The beryl family is a most beautiful one and we should all endeavor to have it fairly represented in our collections. The author is presently looking for a complete crystal of aquamarine in a good blue color, not to cut, but to add to the collection. He would also like to obtain a goshenite crystal but has small hope he will get it until he can revisit some of the localities in San Diego County, Calif. You lucky people going to California on a vacation should by all means, plan on visiting the famous

(Continued on page 500)

THE GEM COLLECTOR

Conducted by Bill Cole
408 Dickinson, Chillicothe, Mo.

THE QUARTZ GEMS

(PART 2—THE CRYPTOCRYSTALLINE FORMS)

This month we will finish our discussion of the Quartz gems by talking about the Cryptocrystalline varieties which includes Chalcedony, Flint, and Chert with enough sub species whose names are derived from color or pattern to fill a book, however we will stay with the more common and best known to the gem collector and mineral collector.

The best known of these varieties of cryptocrystalline Quartz is Chalcedony; Chalcedony is Silicon dioxide just the same as pure Rock Crystal but it does not have an outward crystal form, rather it is more or less a mass of microscopic crystals matted together to form a material that is very tough and resistant to breakage. Chalcedony is composed of Silicon dioxide with variable amounts of water and metallic oxides which also lend a multitude of color to the mineral. The Specific Gravity of Chalcedony is 2.63, the Hardness 7, the Refractive index 1.54 to 1.56, the color ranges from white to black with just about every color of the rainbow in between, and the Luster is from dull to waxy, this waxy luster is one of the prime methods for the identification of Chalcedony as it is quite characteristic of the mineral. As a rule Chalcedony is an opaque to translucent white or grey but when it is marked by bands or whorls of color caused from impurities it is termed Agate with a prefix suggested by the particular pattern, for instance fortification agate has parallel bands resembling the walls of an ancient fortress, the moss agate is a rather clear Chalcedony with inclusions that appear to be moss or other plant life, and the lace agate which is fairly transparent with lacy patterns resembling fine lace work. In fact the range and variety of patterns is so great

that one could go on for ever and still not exhaust all the material at hand.

When Chalcedony is of a solid color it also assumes a title to go with it, for the orange to red translucent shade the name is Carnelian, for the apple green color the name is Chrysoprase, when it is dark green it is called Plasma, the brown is Sard, and when it is of a bluish shade which is very rare the name Siderite is given to it. Often times the coloring matter is so plentiful that the translucency is destroyed and the material becomes opaque, this then is termed Jasper which also has a multitude of sub titles such as Bloodstone, the deep green material that is covered with bright red spots which give the appearance of blood hence the name, Bloodstone, then there is the red and yellow spotted material that is called orbicular Jasper, and the plain red and brown variety that is just plain old Jasper, one of the main constituents of a gravel driveway. It can't all be gem quality and what does fall into this category more than makes up for the junkite type.

One of the most beautiful of all Agates and Chalcedony is the Plume agate which is a transparent to translucent material with little or no body color that contains delicate inclusions of metallic oxides that resemble feathers or plumes and are every bit as graceful and beautiful as the real thing. A close runner-up to this would be the moss agate which contains inclusions of Pyrolusite or Iron oxide that are arranged in fine moss like patterns which resemble everything from undersea gardens to Pine trees. Other important varieties of Chalcedony includes Iris Agate, a transparent type which is composed of thousands of tiny bands that act as a grating spec-

troscope breaking up the light into its individual colors, and when held up to the light a thousand and one tiny rainbows are seen dancing around on the interior of the slab. There is also the variety known as Aventurine which contains inclusions of Mica crystals in a ground mass of green or yellow which gives the whole specimen a spangled appearance and is very beautiful in a cut gem. This variety is imitated in a way that is probably more beautiful and spectacular than the real thing, it is a glass filled with microscopic Copper crystals and is known as Goldstone. This material was discovered quite by accident in Germany some years ago when a glass maker spilt some copper filings into a pot of molten glass and the results were so outstanding that the manufacture of the material was taken up in a big way, it was manufactured mainly by the Monks who made it up into numerous ornaments and sold them all over the world; for several years the product enjoyed great popularity but like all fads it soon fell into oblivion and the formula for its manufacture was lost, however in recent years a few of the dealers here in the United States have acquired some of the old material and are offering it for sale to the lapidaries. There are a few crude imitations around but the real Goldstone is not hard to spot and is fine material for use in modern jewelry.

For a little on the history of Chalcedony we could go back a mighty long time, back to the time of the Pharaohs in ancient Egypt where beads and scarabs of Carnelian and Chrysoprase were very popular and costly. The ancient Romans and Greeks also thought very highly of the various Agates and Chalcedonies that they found along the banks of the rivers and the ones they traded from the Babylonians and Phoenicians. Their favorite use for the Quartz gems was for carving into cameos and seals. They used two or three colored bands to produce some very outstanding specimens of the art of gem carving by making the face or principal subject of one color upon a

background of a contrasting color, also the various colors of Agate were all believed to possess healing or preventative virtues and were highly valued on this alone.

Flint and Chert which are also varieties of Cryptocrystalline Quartz are but very seldom if ever of gem quality and their chief use was in the manufacture of tools and weapons by prehistoric man. These materials were probably chosen because they could be easily chipped into shape due to the conchoidal fracture and would hold their edge because of the toughness of the material.

Well there is no use of going into the details of cutting and polishing Agate for anyone familiar with the lapidary art at all knows the process involved. However those who do not have a good representation of the Quartz gems in their collection should see their favorite dealer and see what he has to offer; many fine stones of this family can be obtained quite inexpensively and will add color to any cabinet. Well, that's all, folks. See you next month!

Sound Films Catalogue

New York State, Department of Commerce, 112 State St., Albany 7, 1957, has just issued their 1957-58 Film Library Catalogue listing 16 millimeter films for sound motion pictures. As many of these films cover minerals, (mining, quarrying, etc.) the catalogue should be of special interest to mineral clubs.

A paragraph in the catalog reads:

All films in the Library are 16 millimeter sound motion pictures which are loaned, without charge, for free showings to industrial, commercial and business organizations; to schools and other educational institutions; to church groups, granges, labor organizations, service clubs, women's clubs, youth organizations and all other responsible groups in New York State which will guarantee an audience of at least 25 persons.



Fossil Department

Conducted by Howard V. Hamilton

1340 Crandall Avenue

Salt Lake City 6, Utah



Some Notes on Fossil Collecting in Utah

by MRS. RODNEY A. STONE

Temporary Address—3312 East Third St., Tulsa, Oklahoma

My husband and I recently concluded a three year residence in the state of Utah. I thought the fossil enthusiasts among R&M readers might enjoy hearing what this Intermountain state has yielded to our diligent searching. We have made written maps and mental notes, so anyone interested in locations might write us.

The House Range in the middle western part of Utah has been one of our favorite haunts. The Cambrian strata so well exposed there yielded an abundance of trilobites—Elrathia kingi, Elrathina cordillerae, Asaphiscus wheeleri and Agnostis interstrictus. One of the oldest phosphatic brachiopods is well preserved in shiny black on the tan shale. We also picked up what appears to be sponge spicules of Choia; some odd carbonized trails and squiggles suggesting soft-bodied creatures; and monaxons and tetraxons of sponge spicules dotting the surfaces of discus-like concretions.

On across White Valley, the Confusion Mountains contain numerous bean shaped astracods, Leperditia, an occasional trilobite and straight shelled cephalopod. These are of Ordovician age.

Not so far from Salt Lake City, in Ophir Canyon, are big talus slides of Mississippian and Pennsylvanian strata. We climbed the most easily accessible, finding a cupcake shaped colonial coral about seven inches across named Lithostrotionella, and the brachia of a crinoid head. There were many varieties of gastropods, but they were difficult to chip

out. Blastoids are to be found there; however, we weren't fortunate enough to collect any.

On South Mountain, west of Stockton, are Mississippian strata eroding out bryozoa in great quantities. Fenestella and Polypora are abundant, with an occasional Archimedes and a trilobite, Griffithides. We discovered a few sea urchin spines and tubercles, and several specimens of the brachiopod, Mesolobus.

Just north of Dinosaur National Monument in the Morrison formation, we spent some exciting hours collecting fragments of reptile bones which included an ichthyosaur vertebra, a toe or claw, a broken tooth, and several gastroliths, one of red jasper with white bryozoans. We tripped over silicified desert wood which so resembled present day wood our friends were unable to tell the pieces apart. This is a yellow and brown wood preserving faithfully the woody detail. In the Curtis formation were dozens of belemnites and oyster shells.

If you collect flora, you might want to try the clay diggings in the Lake Mountains west of Utah Lake. You will find some nice Coal age ferns, scale tree bark impressions, stems and infrequently a seed.

Down near Price, Utah, on the dirt road to Farnham are cliffs exposing Cretaceous strata which provided us with a day's fun. Two formations are present, the Mancos and the Frontier. In the latter are brown round "cannon-

ball" concretions, calcareous, up to ten feet in diameter. It also contained marine and brackish water mollusks, many belonging to the Inoceramus group. We brought home quite a collection of ammonites, gastropods, pelecypods and a few pieces of worm bored silicified wood.

Needless to say, there are many localities we did not have time to visit. Among these are miles of badlands south of Roosevelt, offering mammal bones and turtle shells to the lucky collector, which we hope someday to explore.

Utah offers much for both mineral and fossil collectors, and rockhounds are always welcome, but please remember the "Golden Rule," and leave some of this legacy to future generations.

Fossil remains of giraffe discovered in South Africa

ARCHEOLOGISTS working on the Hopefield site about 60 miles northwest of Cape Town, South Africa, have discovered the fossil remains of an extinct species of giraffe with three foot horns and a squat powerful body. The news was told to an audience in Johannesburg by one of the world's leading paleontologists, Father Edouard Bone, a Doctor of Science of Lovain University, Belgium. Fossils of hippopotami, antelopes, giraffe, elephant, man and stone-age implements were also found in the soft sandy surface of the one-time lagoon.

Union of South Africa

Government Information Office
July 18, 1957

MICHIGAN VACATION — 1956

People, Places and Prospects

Lawrence and Harriette Schoppee, 9 Greenbrier St., Springfield, Mass.

Anyone for copper? After a hundred years of mining activity and mineral collecting, the Upper Peninsula of Michigan is still a profitable and beautiful objective for the collector, photographer or open-air vacationer. Hundreds of mine dumps, miles of agate beaches, increasing numbers of modern motels and half a dozen friendly mineral dealers insure delightful days and pleasant memories of Michigan's copper and iron country.

Our twelve days on the Upper Peninsula was happily filled with sightseeing with cameras, collecting, visiting mineral dealers all of whom are collectors first and dealers second! Using Mr. Floyd Mortenson's article in Nov.-Dec. 1953 ROCKS AND MINERALS as a starting point, plus geodetic survey maps to pinpoint locations, and the Lure Book from the Upper Peninsula Development Bureau at Marquette, Michigan, for scenic and historical attractions, we wasted very little time wondering what to do or where to go.

As always, getting there is fun, too. From Springfield, Mass., we drove

through New York State stopping at Sterling Mine, Antwerp, N. Y. for hematite, botryoidal siderite and siderite crystals. Sudbury and Copper Cliff, Ontario, were our next prospects to collect nickel ore for our cabinet. The International Nickel Co. at Copper Cliff will conduct groups through the smelter at 10 a.m. and 1:30 p.m. daily with commendable care shown for the safety of visitors. The parched and blackened countryside is explained when one breathes the sulfurous fumes from the towering smokestacks of the smelter. We felt purified through and through. Our most dramatic photograph shows the train of molten slag emptying car after car of liquid fire onto the dumps. We didn't collect here but were given specimens of chalcopyrite, pyrrhotite and pentlandite at the Main Office.

Along Route 17 at Thessalon there is an excellent motel and restaurant called the Motel Belle Isle and The Golden Rooster. We had wonderful Canadian meat pies there.

Bruce Mines, Ontario was our next

stop for chalcopyrite in quartz and lovely cutting material of quartzite flecked with red and green jasper. This may be the "arctic puddingstone" mentioned in a recent R&M.

On the Canadian side of the Sault Ste Marie canal is the Algoma Steel Mill with tours on Tuesdays and Fridays at 1:30 p.m. The mill is located on Huron Street off Queen Street West just before you reach the Canadian locks.

On the Michigan side of the canal, many motels line the park at the locks and the restaurants offer good food and a view of the ore boats taking the 21 foot drop from Lake Superior to Lake Huron. Photographers usually line up along the fence to record the progress of the boats. In summer there are excursion steamers which take sightseers through the locks.

From Sault Ste Marie, Michigan, you are in Hiawatha Land, the Upper Peninsula. Our first photo stop was the beautiful Tahquamenon Falls, Upper and Lower, second highest in eastern U.S. They are both reached by turning north from Route 28M, either at Route 123 or at Newberry depending on your direction of travel. Lake Superior sandstone makes a series of stepping stones for the falls. Hiawatha's descendant will rent a boat for you to row over to the island at the Lower Falls.

Miner's Castle and the Pictured Rocks on Route 94 out of Munising can be reached by boat or by car. During the summer boat excursions start at Munising and follow the sandstone cliffs rising in colored splendor out of "The Shining Big Sea Water." We found no minerals in this area but the cameras were busy recording the sunset which silhouetted Miner's Castle and painted the bedding layers of sandstone.

Red soil marks the approach to the "soft" iron ore country around Marquette. On the outskirts of town the Prison Novelty Store is a good place to buy souvenirs. The ore dock at Marquette can be photographed more easily than the one at Escanaba and fortunate you are if an ore boat is loading at the time of your visit. These monsters carry the

equivalent load of 300 freight cars and are filled in less than an hour. To reach the dock at Marquette, go out Front St., turning right at the end. Follow to Lake Shore Boulevard. Turn left and continue to the ore dock and on to Presque Isle for a lovely scenic drive, picnic area, and study of a variety of geologic formations. A note in an early copy of R&M reported obsidian and pumice at this location but all we found was slag from an old iron furnace.

In the Negaunee-Ishpeming area we found the South Jackson pits closed because of fatalities. In Ishpeming we collected hematite, hematite crystals, siderite crystals and brecciated jasper for cutting, at dumps reached by turning off Route 41 at Third St., crossing the railroad tracks, turning left on Ridge St., opposite a church and going to the end which is Seventh St. Turn left on Seventh St., taking the first right-hand road, not counting a short road into the mine yard. Drive out into fields following the grassy road to several dumps.

In Ishpeming also is Jasper Knob, profitable for photographers and cutters. Near the intersection of Route M28a and Division St., is Jasper St., going up the hill beside the Research Building and Hospital. Go up Jasper Street to a rock wall on the left, with steps and path leading up to Jasper Knob. The material is called jaspilite, banded jasper and hematite, and is definitely cuttable.

On our way toward the Keweenaw Copper Country along Route 41, we stopped to wonder at the Indian cemetery at L'Anse. It is remarkable. To reach it, go north along Main St., in L'Anse, over one mile to Indian Cemetery Road which you follow approximately two and one half miles to the cemetery.

At Houghton, Copper is King. Even the parking meters advertise it. On Main Street the Copper Country Publicity Bureau stands ready, willing and able to dispense mining information. The Houghton Agate Shop, 200 Franklin St., sells agates and copper specimens at reasonable prices.

Just over the bridge into Hancock,

turn right on Route M26 to the Arcadia Copper Mine in the town of Ripley, a very short distance. Arcadia combines an underground tour, an extensive gift shop, a large collection of minerals and a proprietor who loves to swap—but good specimens only.

Now that we are over the bridge we are in Keweenaw County, the real copper country where hundreds of copper mines were opened along the basalt ridge rising above the sandstone. Agates, thomsonites, chlorastrolites or pumpellyites, epidote, analcite, natrolite crystals and datolite were found. We prospected about twelve mines and the best collecting for us was at the following:

COPPER:

Clark Mine. At Copper Harbor, go inland two and one-half miles from McGinty's restaurant and cabins. Watch for stacks on the left because the sign is gone.

Cliff Mine. On road parallel to main route between Ahmeek and Cliff. Forty pieces of arborescent copper (1"-2"-3") found in one dump in a few minutes digging. Historical interest.

Amygdaloid Mine. Next to Delaware which is on the map. Good copper and exciting micromounts.

AGATE:

Five Mile Point. Out of Ahmeek follow Bollman Street and continue out of town until the lake appears close to the road. Park and look for agates as far out into the lake as you can. Fossils and thomsonites found here, too.

ANALCITE AND NATROLITE:

Copper Falls Mine. Out of Eagle Harbor on Brockway Mountain Drive headed west, go until you cross Owl Creek and take the next left cart road.

MINERAL SHOPS:

Keweenaw Agate Shop. A Must stop. Mr. and Mrs. Eino Miller, presently located at Vivian St., Ahmeek, will open a mineral shop at Copper Harbor next summer. Mrs. Miller grew up on Isle Royale, famous for pumpellyite, and she

discovered a new location for this rare zeolite on the Keweenaw Peninsula at Cliff Mine. For mineral specimens, jewelry and information, the Keweenaw Agate Shop provided the best prospecting of the entire trip.

Kearsarge Agate Shop. At Kearsarge off Route 41 at Wolverine Traprock Valley Road, take second right turn and then third left (only 0.2 mile). The Peronas have a magnificent collection of datolite. Mrs. Perona collects crystals and will swap.

Eagle Harbor Agate Shop. Just one street from the harbor in the same block with the grocery store. Mrs. Filsinger has at least seven china closets full of Michigan minerals, not for sale; lovely polished chlorastrolites, not for sale; jewelry and copper for sale; and some local minerals for swapping.

All the copper ore is now sent to the smelter at Lake Linden. The fine tailings are washed out into the Lake, and leave nothing to the collector. By heresay only, we learned that there are conducted tours of the smelter with interesting souvenirs.

Continuing on our counterclockwise tour of Michigan's Upper Peninsula, we drove south on Route M25 from Houghton through more copper towns, good prospects for a second collecting trip. Our objective was the Lake of the Clouds in the Porcupine Mountains, the highest point in the state, a beautifully planned, equipped and operated state park. The view from the peak overlooking the lake is breathtaking and photographers may well spend a little time waiting for the right cloud effects.

Six miles south of Silver City, the turn-off point for the Lake of the Clouds, rises the smokestack of the White Pines Copper Mine. Here copper is found in black Nonesuch Shale which makes attractive cabinet specimens when sliced. Usually the guard has ore samples for the visitor but we are out of luck and had to buy our sample from the Houghton Agate Shop. For fifty cents we received a slice of Nonesuch Shale, arbor-

scent native copper and sheet copper all attractively mounted on wood.

The "hard" iron country centers at Ironwood, and the ridge for miles along U.S. Route 2 is pitted with quarries, extending onward into Wisconsin. We always have been a Ford Family by choice and stopped in Ironwood on the unveiling day for the '57 models. Through the courtesy of the local Ford salesman, Mr. Edward Liimakka, we met Mr. Lawrence Eddy, West Midland St., Ironwood, a very active collector and member of the Range Rocks and Minerals Society. Because of our interest in Fords we spent a most interesting and profitable evening at Mr. Eddy's house, although you should be warned that he is an *advanced* collector and swapper, but will sell some specimens. We obtained native silver, grape ore from Ironwood and goethite or needle ore from Wisconsin mines just over the border.

From Ironwood to Escanaba we zoomed along those beautiful but narrow highways. Escanaba is Michigan's second ore dock, busy, but almost impossible to approach close enough to see well or to photograph. Therefore, we took a quick trip back across country to Marquette where an ore boat was nicely posed for filling and photographing. Pasties for lunch that day, but as they were not from the bakery Mr. Mortenson recommended, they were a disappointment—rather like onion flavored potato in pastry. Do try a pastie, however, when you're in Michigan, just to feel at home.

The Petoskey Agate Shop, Gould City, was our next stop. Treat yourself to a visit with Mr. Floyd Irwin. As the billboard on Route 2 reads, this really is "Where Northern Hospitality Begins." The shop is on the right just across the railroad tracks. Mr. Irwin delights in visitors, swapping, making beautiful jewelry of Petoskey stones, datolite and other native minerals. He is the same Mr. Irwin who described so clearly the polishing of Petoskey stones in the Lapidary Journal, June, 1955. We swapped Franklin, N. J., fluorescents for interesting specimens from Mr. Irwin's extensive collection.

For swapping, our Franklin, N. J. fluorescents, plus Lyndhurst, Ontario quartz crystals and a few Pierrepont, N. Y. tourmalines were sufficient. Garnet crystals were popular, too.

On our way again toward Petoskey to collect some of those fossil corals so curious when polished. The city limestone quarry is located on Lake Michigan with a convenient park along the shore. Collect either on the beach or in the quarry where fossils of various kinds are plentiful.

Although we did not visit Rogers City limestone quarry, we should have done so. It is the largest limestone quarry in the world and is located about 55 miles east of the Straits on Route 23 along Lake Huron. We were told many times it is a sight to see.

At Alabaster, Michigan, the U.S. Gypsum Co. has a unique loading network of buckets swinging along on cables strung on towers that extend out into the lake where boats stop for loading. The alabaster here has a very lovely peach color with black veins.

Along Route 23 there were frequent signs for "Honey Rocks" which of course interested us rockhounds. They are a delicious melon with very hard skin. In this area also were cheese factories and stores which are well worth prospecting. Pinconning and Frankenmuth are famous cheese producers.

We left Michigan at Port Huron after noting that triple height snow fences were being raised. Near Ingersoll in Ontario on the road toward Woodstock we took note of a huge quarry of gypsum, lime and alabastine. After photographing the still blooming gardens in Hamilton and Niagara Falls, we set the compass for Ward's Natural Science Establishment, 3000 Ridge Road East, Rochester, N. Y. To fill in those empty spaces in a collection, this is the place to prospect. We did.

Then, loaded with 400 pounds of rocks and minerals, by actual weight, 17 rolls of exposed Kodachrome and plenty of fresh air, we turned homeward to reminisce about our wonderful vacation on Michigan's Upper Peninsula.

INFORMATION WANTED BY READERS

Millicent Redwitz, 1006 N. Jackson, Bay City, Mich., is interested in purchasing jewelry findings, mounts, etc. Dealers carrying these items please send her your catalogs or price lists but—first, read her letter in the Women's Corner in this issue—page 467.

I wish you would send me the name and address of the corresponding secretary of the Mineralogical Society of Pennsylvania which I would like to join.

Philip Presley
110 N. Osborne Ave.
Margate City, N. J.

(The Corresponding Secretary is:

Florence D. Borland,
1706 Nedro Ave.,
Philadelphia 41, Pa.)

Wants information on collecting areas

I am interested in getting information relative to collecting areas within a 100 mile radius of my town. I would like to take one day expeditions and have yet to find any good information as to localities. Please help!

Nicholas Charyszyn
85-23 Parsons Blvd.
Jamaica 32, N. Y.

(There are a number of ways for you to get the information wanted. One way is to join the Queens Mineral Society which holds field trips to interesting localities. The Secretary of the Society is Louis H. Roth, 114-67-223rd St., Cambria Heights 11, N. Y. (LA 5-1380).

Another way is to obtain from your city library a copy of Manchester "Minerals of New York City and its Environs" which lists localities and minerals found there within a radius of 50 miles of New York City.

R&M prints many articles on localities in the area you want—make notes on them.

Still another way is to contact some collector in your area and go with him on trips.

Examine carefully your copies of R&M—you will surely run across names of collectors near you).

Wants information on cleaning silver!

Have been so very well pleased with your magazine that during the past few years have had subscriptions sent to friends who I know would be interested and who I hoped would be sufficiently interested to renew.

Being an expert wondered if you could tell me the best method of cleaning heavily tarnished native silver specimens, both massive and wire? I have tried several methods but don't seem to be able to brighten my specimens up like those I see in public museum collections even when from the same source. If you have the time to enlighten me on this matter I would appreciate it very much.

J. G. Waters
327 Chestnut St.
Kingman, Ariz.

Our guide book, "How to collect Minerals" (price \$1) devotes 1½ pages to cleaning minerals.

The best source of information on cleaning and preserving mineral specimens is Richard M. Pearl's "Mineral Collectors Handbook." In this very fine book 48 pages are devoted to cleaning and preserving minerals of which about 2½ are on native silver. The book is published by Mineral Book Company, 405-A Mining Exchange Bldg., Colorado Springs, Colo. When published in 1947 the book sold for \$3.75; copies may be higher now.

Round the world trip!

Editor R&M:

Mr. Dunn and I are planning on taking a three months round the world trip, leaving New York City on Sept. 30th. We will be in France, Germany, Austria, Switzerland, Italy, India (where my husband has business), China, Japan, Philippines, and Hawaii. Our transportation will be mainly airplanes but we will also use buses, boats and private cars.

I would like to pick up specimens along the way. Can you help me with suggestions? Perhaps you might know a book dealing with minerals around the world.

Mrs. Carl T. Dunn
9101 S. Damen Ave.
Chicago 20, Ill.

Aug. 8, 1957

(It is good to hear of your coming trip around the world and that you would like to collect some minerals while on it. Since your route and methods of transportation are so uncertain, the only suggestions we can offer are those that we would follow if we were to go on such a trip. Make inquiries along the way to see if any mines, quarries, mineral localities, mineral collectors, dealers, or mineralogical museums may be present nearby which you could visit. If you should run across some rock formations—inspect them. Visit beaches, river banks, gravel pits and look for interesting pebbles, sands, etc. Geological Surveys or universities with mineralogical departments may be located in cities that you may visit—inquire about them).

specimens there. R&M makes many references to him. However we have been unable to locate Villafranca del Panades on the map of Spain, so we wonder if you would be so kind as to tell us near what large city this is or in what province it is. Also, could you tell me if Señor Montal speaks or writes any English.

John P. Mosly
Box 210
Ontario, Ore.

June 11, 1957

(Villafranca del Panades is about 36½ miles southwest of Barcelona and on a railroad.

Señor Montal speaks and writes English and we feel sure he would be very happy to meet you).

Does oil-seepage indicate an oil deposit?

Editor R&M:

Here's a question you might put up to some of your readers: Does oil-seepage indicate possible oil deposits below the surface? There has been some interest shown by oil companies in private lands in the Paradise Valley regions of Bonners Ferry, Idaho. In an area about thirty miles from Bonners I have seen oil films on pools of standing water. The rock apparently is of the Belt series but too much forest cover and overburden conceal the true nature of much of the area in question. Would be happy to hear from some of your readers who have some knowledge of the geology of oil. I must confess complete ignorance in the geology of oil.

Gerald Navratil
Bonners Ferry Ranger Sta.
Box 119
Bonners Ferry, Idaho

July 7, 1957

Wants names of cutting equipment mfgs.

If you can, I wish you would give me some names of good cutting equipment manufacturers. I stock the Stonemaster but would like to stock some others. I have to buy from the wholesaler or I can't stock them.

If you have anyone asking about my location—I am just 300 yards off the Parkway on Hwy. #26 near the State Mineral Museum which is about 5 miles out of Spruce Pine on Hwy. 26.

Linton B. Greene
Green's Mineral & Gift Shop
Box 398
Spruce Pine, N. C.

Going to Spain!

As we are going to be in Spain for sometime, we would like to look up Juan Montal of Villafranca del Panades, Spain, in order to get information on collecting mineral

Wanted—pale yellow clear sphalerite

If any reader of R&M has about a pound of pale yellow, *clear* sphalerite, free from inclusions, to spare, will he please write T. Orchard Lisle, 5232 E. Lancaster Ave., Fort Worth 12, Texas.

Who is familiar with Radon Gas?

Editor R&M:

Recently I wrote Mr. Otis R. Lugar, a chemist and I believe a metallurgist of Waynesville, N. C., who is connected with the Southern Appalachian Mineral Society of Asheville, N. C. in regard to his knowledge of Radon Gas.

I explained to him that my partners and I in our exploration work in relation to "rare earths" had encountered Radon Gas and we were anxious to find out his experience in this field. He advises he had not knowingly contacted Radon Gas but suggested I write you in this connection as you or your readers might have something to say in this line of Radon Gas.

Briefly, in one of our operations, we hit a powerful reaction on the Geiger Counter and after studying the A.E.C. and Canada Dept. of Mines and Technical Surveys for Uranium I was convinced by ruling out all else that Radon Gas was the mysterious substance. I contacted the U. of Alabama Geological Dept. and they were indeed skeptical, taking the point that Radon Gas had not been discovered in Alabama except in certain coal mines and their position was that I was wrong, as our location was not within 50 miles of any known coal field in Alabama. At any rate I did contact the A.E.C. in Washington and convinced them there was a genuine basis for spotting same as Radon Gas. The A.E.C. had the Salt Lake City Laboratory of Utah send receptacles here for taking samples. Also had a representative of the Ala. Health Dept. take the

samples to be sure an unbiased sample was made. This was done and the receptacles returned via plane to Salt Lake City, and the report came back to me, also State Health Dept. and the A.E.C., that Radon Gas had been analyzed and it contained a potent amount of Radon Gas.

I have exhausted my efforts in studying Radon Gas and I am anxious to contact some one or other who has had some similar experience.

If you or your readers are familiar with Radon Gas as found in the field of explorations I should be very glad to ascertain any facts or suggestions possible. This gas was found in one of our explorations, but I am convinced this uranium was only the "rubbing" off as the heavy mineral in formation sunk deeper. It is rather an intriguing situation.

I shall be glad to go further in the matter and give more information if some one is interested in giving me more light on Radon Gas.

Cecil H. Smith,
P.O. Box 358
Wetumpka, Ala.

May 4, 1957

(Radon Gas is something new to us and we have never encountered it in the field nor have we ever printed anything about it. Perhaps some of our readers may be familiar with the gas and will write you).

Looking Back Twenty-Five Years Ago in ROCKS AND MINERALS

September 1932 Issue

Turquoise in Nevada, by Dr. H. C. Dake. An intensely interesting illustrated article, pp. 94-97.

The Romance of Chinese Jade, by Wm. B. Russell. Its history, technical

identification, and appreciation as a precious mineral. pp. 98-100.

The Amateur Lapidary, Conducted by J. H. Howard. Random comments were featured in this issue. pp. 104-105.

VISITING ROCKHOUNDS WELCOME

The following subscribers would be delighted to have rockhounds call on them when passing through their cities. If any one else wants his name added to the list, just let us know.

R. A. Richards, Box 44,
Morristown, Ariz.

Mrs. John A. Talbot,
1221 W. 6th Ave., Pine Bluff, Ark.

Paul F. Patchick,
908 Centinela Ave., Santa Monica, Calif.

Mrs. George W. Matson,
Matson Ranch, South Fork, Calif.

Mr. & Mrs. W. T. Graham, 1500 Kawana
Springs Road, Santa Rosa, Calif.

Rose Wey,
12525 S. Rose Ave., Downey, Calif.

M. W. Gilbert,
2011 N. Raymond Ave., Pasadena, Calif.

Donald F. Crain, Metropolitan Life Ins. Co.,
Grand Junction, Colo.

Mrs. Austin W. Harris,
Newent Road, Jewett City, Conn.

Mrs. James F. Donohue,
441 Main St., East Hartford, Conn.

W. R. Olsen, New Port Richey, Fla.

Michael Dee,
231-24th Ave. No., St. Petersburg, Fla.

Walter Berg, Jr. (12 yrs.), 31 Secord Dr.,
MacDill A.F.B., Tampa, Fla.

Meade B. Norman,
1524 Mitchell Ave., Tallahassee, Fla.

Gerald Navratil, Bonners Ferry Range Sta-
tion, Box 119, Bonners Ferry, Idaho.

Bert C. Cole,
2233 Broadway, Boise, Idaho.

Galena Rock & Mineral Museum,
Route 20 & 80, Galena, Ill.

Russell P. Neuwerk,
540-29th Ave., Moline, Ill.

Steve Sturm,
521 Roosevelt Ave., Kewanee, Ill.

F. L. Fleener, 1415 Rosmer St., Joliet, Ill.

Leroy H. Grossman,
211 N. Park Ave., Batesville, Ind.

Edward Rushton
730 Bexley Road, West Lafayette, Ind.

Mr. & Mrs. Wm. E. Harvey,
6905 Madison Ave., Hammond, Ind.

Rex Lucas, Sumner, Iowa

Rev. D. L. Lichtenfels, Calamus, Iowa

Mark Dunn,
316 Summer St., Cherokee, Iowa.

Mrs. Russell I. Griffith,
1013 W. 18th St., Cedar Falls, Iowa

Larry Boyer,
809-9th Ave. E., Oskaloosa, Iowa.

Mrs. Frank Krogmeier, Sr.,
R. R. 2, Fort Madison Iowa.

Bill Prather, U.S. 281,
4½ miles north of Great Bend, Kans.

Lovett Word,
1908-5th St., Leesville, La.

Mrs. Fred Strout,
29 Maple St., Hallowell, Me.

Robert T. Davis, Newry, Maine

David B. Sleeper,
Box 4, Sabattus, Me.

Leroy Leisure,
500 Townsend Ave., Baltimore 25, Md.

Sam Stewart (14 yrs.),
254 Moose Hill St., Sharon, Mass.

Toivo Puranen, Ellis Rd. RFD 2, Box 67
Westminster, Mass.

Mr. & Mrs. W. M. Krause,
14190 Glastonbury Rd., Detroit 23, Mich.

Visiting Rockhounds Welcome (Continued)

- Mrs Marion E. Hull,
704 Gratiot Ave., Saginaw, Mich.
- Robert Schenck,
R1 Box 71, Republic, Mich.
- Carl F. Lemlin,
624 E. Division St., Ishpeming, Mich.
- Lee E. Payne,
Rt. 1 (Eagle Lake), Willmar, Minn.
- Milton Wernecke,
1631 W. 5th St., Winona, Minn.
- Geo. C. Dick,
9207 Argyle, Overland 14, Mo.
- Brentwood Lapidary & Gem Shop,
8913 White Ave., St. Louis 17, Mo.
Phone WOODland 2-4067
- Robert Kissick,
7140 Theodore Pl., St. Louis 20, Mo.
- Alvin W. Kemp,
231 Elmwood Blvd., Jackson, Mo.
- CWO Vernon R. Braun, 950406E,
Headquarters Squadron,
4061st Air Refueling Wing,
Malmstrom Air Force Base, Mont.
- I. Everett,
2941 N. 65th, Lincoln, Nebr.
- Rev. M. E. Corbett,
The Parsonage, Acworth, N. H.
- Roger S. Hubbard,
RFD No. 1, Meredith, N. H.
- Edward T. Barone,
48 Elmwood Rd., Verona, N. J.
- Clark P. McLean, Brass Castle Road,
RD #1, Belvidere, N. J.
- Edwin Skidmore,
253 Central Ave., Mountainside, N. J.
- Mr. & Mrs. Donald Sinkway,
118 N. Prospect St., Washington, N. J.
- Don Alfredo,
322 Linda Vista, Las Cruces, N. Mex.
- Max C. Lion,
1528 Solano Dr., N.E., Albuquerque,
New Mexico
- Vernon Haskins, East Durham, N. Y.
- Leo A. Miller,
Blossvale, N. Y.
- Charlie Bennett,
210 W. Franklin St., Horseheads, N. Y.
- Mr. & Mrs. Walter Kowal,
R.D. 2, Goshen, N. Y.
- Richard L. Sylvester,
145 Crestview Dr., Syracuse 7, N. Y.
- Nancy Simons (14 yrs.),
167 Main St., Amenia, N. Y.
- Mrs. A. E. Van Inwegen,
195 Broadway, Monticello, N. Y.
- Harold J. Lienemann,
62 N. Gordon St., Gouverneur, N. Y.
- Robert Ransom,
906 Woodland Ave., Schenectady, N. Y.
- William N. Sechrist,
193 Lehigh, Rochester 19, N. Y.
Phone: GENesee 8216M
- Ernest Brill (11 yrs.),
2975 Ave. W., Brooklyn 29, N. Y.
- Martin Seidman, 144-08 Grand Central
Pkwy., Jamaica, L. I., N. Y.
- Donald V. Dalton,
Box 68, Chimney Rock, N. C.
- Alice Nicholson (14 yrs.),
3112 Eton Rd., Raleigh, N. C.
- Dept. of Physical Science,
Belmont Abbey College,
Belmont, N. C.
- Fred J. Teague,
1612 3rd Ave., S. W., Hickory, N. C.
- D. R. Holder,
4485 Indiana Ave., Winston-Salem, N. C.

Visiting Rockhounds Welcome (Continued)

Mr. & Mrs. Clarence Carey,
Collins, Ohio

Dick Dominik,
12209 Wayland Ave., Cleveland 11, Ohio

Rev. C. B. Howells,
169 Parkwood Ave., Lakewood 7, Ohio

Bill Berke,
1446 Earlham Dr., Dayton 6, Ohio

Eileen Philpott (16 yrs.),
2200 Wascana Ave., Lakewood 7, Ohio

Albert Laws Kidwell,
1410 Terrace Drive, Tulsa, Okla.

Albert R. Welch,
Star Route South, Waldport, Ore.

Rev. Wm. J. Frazer,
625 Main St., Moosic 7, Penn.

Mrs. Ammon Schwartzbach,
2239 Logan St., Harrisburg, Pa.

Paul M. Popovich,
124 Lincoln Ave., Leechburg, Pa.

Theresa Farnham,
R D 2, Cambridge Springs, Pa.

Leighton Donley,
Box 101, Miners Village, Cornwall, Pa.

H. C. Van Tassel,
8009 Westmoreland Ave.
Pittsburgh 18, Pa.

Edward Carey (11 yrs.),
200 Atwell Ave., Providence, R. I.

Adolph Hillstead,
1309 4th St., Brookings, S. D.

M. S. Ortman, Ortman Museum,
6 mi N. of Marion, S.D.

Mrs. Edwin P. Olson,
Beresford, S. D.

P. M. Plummer, Box 701, Alpine, Texas
(2 miles west on U.S. 67 & 90)

Robert Peck,
3011 Spurlock St., Dallas 23, Texas

Howard V. Hamilton, 1340 Crandall
Ave., Salt Lake City 6, Utah

Charles A. Steen, Utex Exploration Co., Inc.,
Moab, Utah

James M. Fagan, Wallace, Va.

G. W. Weber,
1320 Portland Ave., Walla Walla, Wash.

John T. Scott, Linger Longer Lodge,
Moses Lake, Wash.

A. Kietz,
860 N.E. 10th Place, Bellevue, Wash.

Lyle De Rusha,
RR4, Chippewa Falls, Wis.

Mrs. Mary E. King,
Star Route, Palmer, Alaska

Mrs. E. R. Willis,
17-3rd Ave., Chilliwack, B.C., Canada

Lt. W. L. Hiss,
94 Green Lane, Padgate, Warrington,
Lancashire, England

Wants article on trimming & cleaning mineral specimens!

Editor R&M:

We all enjoy R&M—I have a request to make. Please include an article in one of the future issues on trimming and cleaning mineral specimens. There must be a better way to do it than we know as our specimens so often break where you don't want them to. Also they have coatings on them which I cannot seem to remove.

James Kernaghan
162 E. New Lenox Rd.
Pittsfield, Mass.

(Our guide book, "How to collect minerals" has the answers to your problem. Order a copy—it's only \$1.00).

Club and Society Notes

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

East

Mineralogical Society of Pennsylvania

June Field Trip

The June Field Trip of the Mineralogical Society of Pennsylvania was held on Sunday, June 9th, and it consisted of a visit to the Cornwall Mine, near Lebanon Pennsylvania, a property of the Bethlehem Steel Company. Mr. William Maurer, Chief of Plant Patrol, and Mr. George Perhach, Head Mining Engineer welcomed the group of some 150 members and friends, and escorted them first to the dump at Shaft Number 4, and later to the fill area overlooking the old open pit mine. The view from this high point gives an excellent picture of the geology of the area, and also is the best spot from which to get a good view down the man-made canyon that until 1953, was the principal site of mining operations. These high disposal areas are excellent collecting sites, and all members headed homeward with some worthwhile specimens in their bags. Among those who displayed their catch to this reporter were Will Beveridge with some excellent andradite crystals, Alex Knoll and Harry Ranck bristling magnetic magnetite, Hap Jennings showed some very fine micro-actinolite, Joe Sabo came up with a vug showing beautiful heulandite, Harry Ranck picked up a man-sized boulder of chlorite which will certainly wind up in the North Museum of Lancaster, and Tim Warner and Luther Bieber were proud of their finds of specular hematite and arsenopyrite.

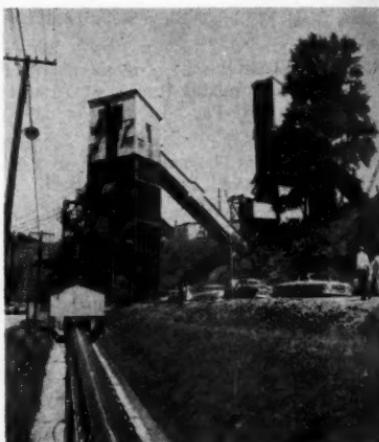
For the ever present lapidarists, there was plenty of breccia and conglomerate which should show up very fine indeed when cut and polished.

This mine is justly famous as a collecting spot, and the Society appreciates very much indeed, the generous and cordial manner in which the Bethlehem Steel Company acted as hosts. The trip was under the direction

of General Chairman James B. Irvine, and his able Regional Chairmen, Leighton Donley and Eugene Orner.

July 1957 Excursion

Was taken Sunday the 14th to Lime Crest, Sussex County, N. J. 125 persons availed themselves of the opportunity to hunt specimens in this enormous quarry located in the promising Pre-Cambrian metamorphosed limestone in the rich north Jersey area. Everyone seemed to get something to pay them for their labors. There were some intriguing specimens of brilliant brown tourmaline, tremolite, aragonite in attractive rosettes, lots of small crystals of graphite, titanite, pyrite, hornblende, pyrrhotite, much varied calcite, ruby spinel, allanite, norbergite, chondrodite, blue sapphire, abundant but difficult to get out. Messrs. Beveridge and Sabo prepared a choice exhibit of fine quality specimens, found by them in the past at Lime Crest, a courteous action and most helpful. Good weather helped to make it a fine trip. Deep



No. 4 Mine Cornwall Pa.



M. S. P cars on the big dump at Cornwall, Pa.

gratitude is due our hosts, Limestone Products Company, for their hospitality to our Society.

Harry W. Trudell
Member Publicity Committee
1309 Highland Ave.
Abington, Penn.

Stamford Museum Mineralogical Society

On "second Tuesday evenings", the other visitors at the Stamford Museum and Nature Center have been accustomed to strange lights flickering among the shadows as the Mineralogical Society's members gather and check their new fluorescent specimens.

In January, the group saw movies of the Colorado School of Mines, and the mining of Bauxite in Jamaica.

The big event of the February meeting was the annual auction. Specimens, donated by members, were placed on sheets of paper on which members recorded their bids and initials. Lively action took place as bidders hurried around the tables, keeping an eye on the samples they especially wanted, and raising their bids when their previous figure was topped. Finally, when "time" was called, each high bidder picked up his specimens and paid his money into the club treasury.

Dr. Robert B. Booth, of the American Cyanamid's Mineral Dressing Department, spoke at the March meeting, explaining the fundamentals of flotation and other methods used to concentrate valuable minerals from their ores. This lecture provided excellent background for a visit to the Dorr Oliver Laboratory in Westport, Conn., arranged by Richard W. Flagg for the May meeting. There, laboratory scale equipment was demonstrated, and magnetic separation of garnet from quartz was only one of the many surprises of the evening.

Between these two related meetings, the annual banquet was held, on April 9th. Mr. Ernest Ludhe, Director of the Stamford Museum and Nature Center was the speaker. Mr. E. W. Hewitt and Mr. J. E. Lehotsky were re-elected President and Vice President, respectively. Mrs. Donald Lederer was elected Treasurer, and James B. Fullman, Secretary.

With the coming of May, the first full-scale field trip was held at Strickland Quarry, Portland, Conn.; and June first found the group assembled on the Buckwheat Dump at Franklin, New Jersey.

At the June meeting, a sound and color film, obtained from the American Museum of Natural History in New York City, was shown. Igneous, sedimentary, and meta-

morphic rocks were illustrated in the films, and their formation was explained.

Average attendance at meetings has been about 20, and fellow collectors may be assured of a sincere welcome. Just come to the Stamford Museum and Nature Center, Conn., at 8 P.M. the second Tuesday of the month.

James B. Fullman, Secretary
Scofieldtown Road and Woodley Lane
Stamford, Conn.

Rockland County Mineral & Gem Society

At the Rockland County Mineral & Gem Society's regular meeting held on Friday, July 26, 1957, Dr. Jack Oliver of the Lamont Geological Observatory, Palisades, N. Y. (Columbia University) was the guest speaker. His subject was "Seismicity of the Earth." Dr. Oliver opened his talk with a definition of the title, which means the branch of seismology which tells where and when earthquakes happen. He stated that it is very easy to find these locations in a populated area, but many earthquakes take place in unpopulated areas where there is no publicity, hence this is one of the tasks for which the seismographs operate.

A seismograph is a very simple instrument. Its principal design is to record the mass movement of the Earth, but not be part of or attached to the earth. The construction of the instrument consists of a heavy mass supported by a spring, but free to move. The mass due to inertia does not move, but the earth moves up and down or sideways under it. The indicating mechanism attached to the mass in effect is moved by the Earth.

There are three types of seismographs—the instrument used for vertical movements is so arranged that the mass can move up or down, but not sideways. The instrument designed for the sideways motion is supported by a beam which is hinged very much like a gate, this instrument with the mass in effect is free to move sideways, but not up and down. The usual combination of instruments is to register vertical, East and West and North and South movements.

The mechanisms used to pick-up the motion of the earth can be of several different types. One, is that a mirror is attached to the moving mass which throws a beam of light on the recording drum.

The Lamont Geological Observatory uses a more sensitive one, which is a coil attached to the mass and moved within the poles of a strong magnet. This coil is connected to a sensitive galvanometer on which is a mirror which swings a light beam across a moving chart, this being on a drum gives a 24 hour continuous record. Dr. Oliver stated that when we can invent a platform in space, this will be a perfect seismograph.

There are about 500 seismographs distributed over the earth's area of all types. Fifty to one hundred first class, the rest being smaller. All of these will register the waves of an earthquake. All findings are pooled and so by triangulation, the actual location of the quake can be located. The action of this is very similar to when a stone is thrown into a pool, it sets up circular waves which travel from the impact of the stone, so when each station receives this wave, it records the time and intensity of the impulse, then this information is sent back to a central station, such as Washington, D.C., U.S.A.; Strasbourg, France; and in England, and they in turn pool their information and together they deduce within about a degree the exact spot of the tremor. This method has only been developed in the last fifty years. Only since 1930 have tables been set-up to record precisely where the tremors have occurred. Seismology as a science has only been in operation during the last seventy years. Before that, any data had to be derived from history and legend.

Earthquakes normally occur as far as twenty or thirty miles below the earth's surface, but some have been known to go to the depth of 400 miles. There are three classifications; shallow—depth of 20 miles; intermediate—depth of 30 to 180 miles; and deep—depth of 180 miles to 400. Only one of the latter have been recorded outside of the circum-Pacific belt, occurring in 1953 below Spain.

They are known in their geographic belts, such as "Circum-Pacific" 80% of these are shallow. This belt is in Nevada; California, where the shocks are shallow, travelling to South Alaska; Aleutian Islands; Kamchatka, where in the last five years the earthquakes have been large ones. The "Pacific" belt, 90% of these shocks are intermediate, is in the East Indies; New Guinea; along South America by the Andes; down through Central America.

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tal America and Mexico and the West Indies.

The second important belt is in Europe; the Himalayan Mountains; Turkey; Greece; Sicily and Spain. The third belt is in South Africa; mid-Atlantic Oceans; Iceland, across the Arctic Oceans; Submarine Ridge, which the Azores are a part; the Indian Ocean and Rift Valley in Central Africa.

There are very few stations in the Southern hemisphere because the land there is not too populated or developed, most of this hemisphere is ocean. This is one of the problems that the International Geophysical Year scientists are working on—that is to establish more stations in this area.

What are earthquakes? Dr. Oliver explained that the earth's crust is weak in places, the force causes pressures in these faults, causing movement, making mountains to rise, and valleys to lower, such as taking place in Nevada, U.S.A. The Circumpacific belt has a horizontal faulting, this has a result of building and not leveling.

Seismology is not only used to record earthquakes, but it is being used to study and is an important source of knowledge of the physical make-up of the Earth, such as the depth of the Earth's core, which is in liquid form. It is about 1500 miles deep. The International Geophysical Year, which commenced July 1st, 1957, are studying this question with special instruments, studying the records of different types of waves to be able to determine the make-up of the Earth's interior and many other factors.

Dr. Oliver was asked whether earthquakes occur in older rock formations, such as the precambrian period? He said, very seldom, they occur mostly in the young mountain ranges and they can be a part of mountain building. Earthquakes follow volcanic belts and vice-versa. There are many geological slippages, some cracks are 20 to 50 feet deep. It was claimed in India (not proved) that a mountain had moved several hundred feet during a quake.

Another question was asked, "How many earthquakes are recorded during the year?" Dr. Oliver said that at Lamont Geological Observatory two or three a day are recorded; during the year about 30 or 40 important ones.

He stated that beginning about 1954 earthquakes had diminished considerably,

that at Lamont they thought their instruments were not recording (jokingly), but after March 9th of that year, when an earthquake of considerable intensity occurred in the Aleutians, the increase of the number of shocks were felt all over the world.

Dr. Oliver explained that Lamont Geological Observatory here in Rockland County, N. Y., was in a very good geological position, as it was not in an earthquake belt, being on the East Coast, it receives the continental shocks as well as the oceanic shocks from the Atlantic, the waves coming from both directions undistorted by complex paths.

A compressional wave takes six minutes to reach Lamont from the West Coast, surface waves called "Shear" take about eleven to fifteen minutes which follow the "Compressional" wave.

Lamont Geological Observatory (Columbia University) is among the larger stations operating in the United States, such as California Tech., Pasadena; University of California in Berkeley; St. Louis University. There are others in Europe, a large one in Stuttgart, Germany. Soviet Russia claims to have developed about 75 stations.

Dr. Oliver illustrated his talk with a small model seismograph and showed the locations on an illuminated terrestrial globe. Many other questions were asked by the very interested audience, which Dr. Oliver kindly answered.

A short business meeting was held following the program. Refreshments were served. Mr. Edward Howard, Vice-president, presided in the absence of Mr. John Weitmann, President, who is on vacation.

Marguerite R. Collyer,
Secretary,
West Nyack, N. Y.

Nassau County, N. Y., Mineral Club

A group in Nassau County, N.Y., formed a small mineral club a few months ago. We are now anxious to increase the membership.

Mrs. S. Corso, 497 Chamberlin St., East Meadow, N.Y., or Mrs. B. L. Meche, 16 Elm Place, Sea Cliff, N.Y., will be happy to give further information to any interested persons.

Any suggestions or advice you could give us would be greatly appreciated.

Mrs. B. L. Meche

South

Memphis

Archaeological & Geological Society

Twenty members of the Memphis Archaeological & Geological Society (3641 Lakeview Road, Memphis 16, Tenn.) were in Marion, Ky., June 29th and 30th to visit our museum. Dr. H. Perry Bynum is president and he is a good one. The Society is only a few years old, however, it has some 120 members and they appear to be one of the most active clubs I have known.

B. E. Clement
Clement Museum
Marion, Ky.

Mid-West

Earth Science Club of Northern Illinois

The Earth Science Club of Northern Illinois, 4729 Prince Street, Downers Grove, Illinois, opened their 1957-58 year with an exhibition at the Downers Grove Fall Festival in the Downers Grove High School, on August 31st.

October 11th will be Auction Night, one of the big annual events of the Club, when perhaps 500 people will gather to visit and compete for the many items sold by silent auction.

ESCONI, as the Club is also known, will be the 1958 convention host for the Midwest Federation of Mineralogical and Geological Societies.

Max L. Hillmer, Pub. Chairman
417 S. Sunset Ave.
LaGrange, Ill.

Des Moines Lapidary Society

The last regularly scheduled social meeting of the Des Moines Lapidary Society was held at the Des Moines Art Center, Saturday, June 15. Members, Guest Members, and visitors enjoyed the three-part program. The contest for the evening was open to all and the entries were limited to Ladies Brooches or Pins. The subject for the feature part of the program was "My Favorite Geode." Members of the club and their families had enjoyed a rock-hunting excursion to Keokuk, Iowa on May 25th

and 26th, so a goodly number of geodes were brought and bragged upon. After intermission the club was privileged to view a series of colored film strips featuring five of our National Parks.

Mrs. Arthur F. O. Cederstrom
Reporter
1403-86th St.
Des Moines, Iowa

Rochester Earth Science Society

The Rochester Earth Science Society held the last meeting of the year at the regular meeting place, the east cafeteria of the Central High School building, May 13. After a pot luck supper Dr. Duncan Stewart of Carlton College at Northfield spoke on Cambridge and Antarctica. He has spent a year at Cambridge studying material brought back from Antarctica by Ad. Byrd.

Members of our Club took a case of minerals to the Art Festival at Wabasha in May. This case contained specimens showing cutting material in the rough, after it was cut and later polished and in jewelry. Also it contained some mineral specimens.

The Rochester Earth Science Society had a booth at the Rochester Art Festival, held at Maywood in June. There was lapidary equipment set up and Dana Rogers, Fred Kennedy, Ralph and Robert Parkhill were using the equipment and showing a display of cut cabs, jewelry and mineral specimens. This was well attended as several thousand came to this Art Festival.

Harold and Jessie Whiting took 4 exhibits to the National Show at Denver in June, the exhibit of cabinet specimens winning the Woodruff Trophy.

Cor. Secretary
Jessie Whiting
1521-9th Ave., N.E.
Rochester, Minn.

St. Louis Mineral & Gem Society

"Fossils, a Guide to the Relationship of Sedimentary and Layered Rocks" was the subject of a talk by Bruce Stinchcomb, second year geology student at the School of Mines, Rolla, Missouri, before the St. Louis Mineral and Gem Society at its meeting held on September 6, 1957, according to Edward R. Gebhardt, program chair-

man. The meeting was held in Wilson Hall, the Geology building of Washington University.

A junior member of the society, Stinchcomb has made an intensive study of fossils and his talk was most interesting and instructive.

Mrs. Charles C. Crosswhite
Publicity Chairman
8913 White Avenue
St. Louis 17, Missouri

chons. George Futa, beautiful Wyoming agate. Andy Niedelkoff, large beautiful wood cast with yellow pom poms and amethyst xls. John Crock, lovely Wyoming wood cast cabochons Mr. and Mrs. R. J. Laughlin, exquisite handmade jewelry in original designs, and their first showing of gem varascite, large amethyst xl cluster and carnelian wood.

At the State show, the R. J. Laughlins had the same display as previously mentioned. Henry Arp displayed his fabulous collection of Eden Valley woods. John Crock, a rare display of Wyoming wood casts.

This club is having a joint picnic with the Rex Young Society of Torrington, Wyoming, July 14th. After the picnic, a field trip. Picnic will be at the Guernsey Dam.

Edward E. Kopsa
Corresponding Secretary
1740 Andover Drive
Cheyenne, Wyo.

Lincoln Gem and Mineral Club

Because there are no large collecting areas in eastern Nebraska, the Lincoln Gem and Mineral Club would like to try something new. On Sunday, October 6, at 12 o'clock noon, the Club is inviting all rockhounds for a picnic in Pioneer Park for the purpose of trading and getting acquainted. Bring your own picnic lunch or it can be purchased near the park.

Dealers also are invited. One dealer has offered to demonstrate a tumbling machine.

There will be a mineral prize for the oldest rockhound and cutting material for the youngest person showing a specimen that he or she has cut and polished. One pound of Mexican Agate will be given to the person displaying the largest baroque stone and one pound for the largest polished cabachon.

The newly decorated mineral museum at the University of Nebraska is an added attraction that is well worth seeing.

For further particulars write the president of the Lincoln Gem and Mineral Club, Dick Hedges, 5844 South Street, Lincoln, Nebraska.

Frances Tracy, Secretary
3601 South St.
Lincoln, Nebr.

Rocky Mts.

Cheyenne Mineral & Gem Society

The Rocky Mountain show in Denver, and the State show in Casper, were well attended by club members. Twenty-five cases of individual non-competitive exhibits were displayed at the RMFMS show in Denver by club members. Dick Edwards displayed his collection of miniature Eden Valley limbs. Mr. and Mrs. Roy Bible displayed lovely hand-made jewelry and cabo-

Canada

Montreal Gem & Mineral Club

The Montreal Gem and Mineral Club has been established for 6 months. Some of our members subscribe to R&M, said books are passed along to other members and at our meetings we have further interesting items to discuss. We as a club, have made nine field trips to various mines within 150 mile radius of Montreal and as one can well guess, we have collected quite a lot of duplicate specimens, mostly mineral but some cutting. We would like to do some trading. Our field trips are restricted to the summer only because of the frigid winters, even so, we go to some rugged localities searching for old mines and have a few that have rewarded us with some fine specimens. We are also in contact with mining Companies who arrange guided tours in their mines that are active. All in all, we've had a really interesting season so far and have a few more trips planned. We are the only Rockhound Club east of Toronto. We are told that there is a club in Toronto and one in Vancouver but so far we are unable to contact them. Can one imagine a country as large as Canada and with the terrific mineral wealth, and only three clubs? We hope to have a permanent meeting hall soon, membership is

going ahead fast. We had a good write-up in the Newspaper and have had two Radio sessions and have been invited to go on TV. This province is particularly rock conscious. There are two prospector courses available in the fall. One French, one English, and with it all, we expect to enroll quite a large number of members this coming winter.

R. Britton, Pres. 140 Irvine Ave., Westmount, Que., Canada
S. Ronson, V.P., 4660 Lacombe Montreal, Canada
H. Gehrig, Sec., 3255 Goyer Montreal, Canada

Collector's Corner

For the special benefit of collectors who may be living in areas far removed from other collectors we have opened this feature. In this corner, a collector may have his name and address listed for the purpose that other collectors may write him in the hope that through correspondence, exchange of ideas and specimens, new friendships may be formed. Listings are free.

Paul F. Patchick,
958 Centinela Ave., Santa Monica,
Calif.

Mrs. Beulah Lehman,
187A S. Edwards, Bishop, Calif.

Marion Godshaw,
633-21st St., Santo Monica, Calif.

Rose Wey,
12526 So. Rose Ave., Downey, Calif.

H. J. Kendrick, Ophir,
San Miguel Co., Colo.

Theo. Kirschman,
Haswell, Colo.

Mrs. James F. Donohue,
411 Main St., East Hartford, Conn.

Walter Berg, Jr. (12 yrs.),
31 Secord Dr., MacDill, A.F.B.,
Tampa, Fla.

Meade B. Norman,
1524 Mitchell Ave., Tallahassee, Fla.

Michael Dee,
231-24th Ave. No., St. Petersburg, Fla.

Fred Nelson,
2216 Elizabeth Ave., Zion, Ill.

Steven Sturm,
521 Roosevelt Ave., Kewanee, Ill.

Mrs. Maurice Lamb.
Niota, Ill.

Victor Felger, 126 Esmond St.,
Fort Wayne, Ind.

Edward Rushton, 730 Bexley Road,
West Lafayette, Ind.

Mr. & Mrs. Wm. E. Harvey,
6905 Madison Ave., Hammond, Ind.

Bill Prather, Box 131,
Great Bend, Kans.

Jimmy Henderson (13 yrs.),
1345 W. 10th St., Bogalusa, La.

M. H. O'Brien, 2927 Vandenberg Rd.,
Muskegon 36, Mich.

Mrs. Marion E. Hull,
704 Gratiot Ave., Saginaw, Mich.

Mrs B. A. Heath,
Skandia, Mich.

Lee E. Payne, Route 1 (Eagle Lake),
Willmar, Minn.

Milton Wernecke,
1631 W. 5th St., Winona, Minn.

Lew Powell (12 yrs.),
Route 1, Dundee, Miss.

CWO Vernon R. Braun, 950406E.
Headquarters Squadron,
4061st Air Refueling Wing,
Malmstrom Air Force Base, Mont.

- Charles Eggleston (10 yrs.),
908 Ave. E., Cozad, Nebr.
- Philip Presley (16 yrs.),
110 N. Osborne Ave., Margate City, N. J.
- Mrs. J. J. Tamburri,
Box 74, Morganville, N. J.
- Edwin Skidmore,
253 Central Ave., Mountainside, N. J.
- Leo A. Miller,
Blossvale, N. Y.
- Jacqueline Levy (11 yrs.),
149 Arlington Rd., Utica 3, N. Y.
- John Fahey, Jr. (15 yrs.),
38 Barclay St., Albany 9, N. Y.
- Harold Weiss, M.D.,
8002-10th Ave., Brooklyn 10, N. Y.
- Mr. & Mrs. Walter Kowal,
RD2, Goshen, N. Y.
- Nancy Simons (14 yrs.),
167 Main St., Amenia, N. Y.
- Charlie Bennett, 210 W. Franklin St.,
Horseheads, N. Y.
- Ernest Brill (11 yrs.),
2975 Ave. W., Brooklyn 29, N. Y.
- John Wilson, 44 Van Cort. Pk. Ave.,
Yonkers 2, N. Y.
- Bert Robinson (14 yrs.),
712 Crown St., Brooklyn 13, N. Y.
- Joseph Jeski (13 yrs.),
676 Humboldt St., Brooklyn 22, N. Y.
- Robert Pasca,
395 Sussex Rd., East Meadow, L. I., N. Y.
- Harold J. Lienemann,
Box 42, Gouverneur, N. Y.
- Alice Nicholson (14 yrs.),
3112 Eton Rd., Raleigh, N. C.
- Maxine Megyesi, 155 E. Main St.,
South Amherst, Ohio
- Eileen Philpott (16 yrs.),
2200 Wascana Ave., Lakewood 7, Ohio
- Allison Cusick,
RD #1, Unionport, Ohio
- Dick Dominik, 12209 Wayland Ave.,
Cleveland 11, Ohio
- Rev. C. B. Howells,
1679 Parkwood Rd., Lakewood 7, Ohio
- Tommy Kelley (11 yrs.),
528 S. 79 E. Ave., Tulsa, Okla.
- James L. Winder, 1285 N. E. Stephens,
Roseburg, Ore.
- Theresa Farnham, R. D. 2,
Cambridge Springs, Pa.
- George R. Schortz, R. D. 1
Bethlehem, Pa.
- Robert C. Smith, II,
920 Seneca St., Bethlehem, Pa.
- Mrs. Ammon Schwartzbach,
2239 Logan St., Harrisburg, Pa.
- Mrs. Tres Lawhead,
3936 W. Ridge Rd., Erie, Pa.
- Edward Carey (11 yrs.),
200 Atwell Ave., Providence, R. I.
- Mrs. J. O. Blackwell,
R #5, Abilene, Texas
- Walter Scott Gray, Jr., 417 Perry Ave.,
Denison, Tex.
- Earl Medlin (16 yrs.),
1301 N. Oak, Mineral Wells, Texas
- Gary Coen (14 yrs.),
3762 Valley Ridge, Dallas 20, Texas
- P. M. Plimmer, Box 701, Alpine, Texas

G. W. Weber, 1320 Portland Ave.,
Walla Walla, Wash.

M. W. Anthony,
P. O. Box 260, Bellingham, Wash.

Lyle De Rusha, RR4,
Chippewa Falls, Wisc.

Earl C. Peterson,
New Lisbon, Wisc.

Mrs. Mary E. King,
Star Rt., Palmer, Alaska

Miss Carol Corns (16 yrs.), 365 Hillside
Ave. E., Toronto, Ont., Canada

Ernest Windisch, 1576 Desmarchais Blvd.
Montreal 20, Que., Canada

Lt. W. L. Hiss,
94 Green Lane, Padgate, Warrington,
Lancashire, England

FRANK DUNCAN FUND

Editor R&M:

"I've just read Mr. John S. Albanese's letter (R&M, July-Aug. 1957, p. 380) concerning the plight of Mr. Frank Duncan of Terlingua, Texas. He is so right about the job that you and dealers are trying to do and how unappreciative some people can be; however, the great majority are just great. But that is not the point; the point is that something should be done to assist Mr. Duncan. He deserves a tribute and Mr. Albanese's letter is a fine tribute indeed, but isn't there some way that you could take it further? What about a "fund" to assist the gentleman? If the dealers and subscribers alike will chip in a little, the sum total will do him a lot of good. I would like to start such a fund with the enclosed check. I hope you can get something under way that will raise enough to help him. Good luck!"

George Bruce
International Import Co.
604 Peachtree St., N.E.
Atlanta 8, Georgia

Aug. 23, 1957

Frank Duncan Fund

International Import Co. (George Bruce)	\$ 5.00
Rocks and Minerals	10.00
Women's Corner of R&M (Winnie Bourne)	5.00
Total to date	\$20.00

This is a most worthy cause and we do hope and trust that at least \$500 will be raised by Dec. 15th so that the amount may be sent Mr. Duncan as a nice Christmas present. All who donate over \$1 to the Fund will be listed in R&M (unless they wish to remain anonymous.) We are very sure Mr. Duncan will be greatly touched and deeply grateful by this warm tribute to an old mineral dealer. Send all donations to ROCKS AND MINERALS, Peekskill, N.Y., and mark them "Frank Duncan Fund." Fund will close Dec. 15th, 1957—Editor.

WITH OUR ADVERTISERS

Conducted by James N. Bourne
c/o Rocks and Minerals, Box 29
Peekskill, N. Y.

Advertisers are cordially invited to submit News Items to this Department

George A. Bruce, Pres., of International Import Company, 604 Peachtree St. N.E. Atlanta 8, Ga., forwards to us an item we know will be of interest to our readers.

The item reads as follows:

"We recently acquired a number of stones from the Phillips Collection which include large fancy-colored sapphires of all colors, peridots of 51 and 60 cts. Very fine. A magnificent opal, a red spinel weighing 26.80 cts. and just about everything there is.

"From England, we received a number of pink topazes which are very inexpensive, surprising for this material, and a number of the rare gems mentioned in our ads."

Note: International Import will be pleased to accept your inquiries to above material and other exceptional buys as listed in their classified ads with each issue of R&M.

"We have received an item of interest from Wm. E. Bouton, Prop. of Bouton's Lapidary, Atascadero, Calif. Bouton's Lapidary caters to the rockhound and they need no introduction to our readers as their many satisfied customers find Bouton's to their liking. Mr. Bouton's item reads as follows:

"We have been in this same location for the past nine years, however, in December 1953 we opened our new store which we are very proud of. It is a building 32x56 designed and built especially for us, and is used entirely as a store for the rockhound hobbyist. We carry a large variety of equipment, minerals, crystals, cutting materials, mounts and findings to please the rockhound.

"Our Little Gem Tumbler is now on its second year with well over 200 sat-

isfied customers. Thanks to ROCKS & MINERALS for a great many of these sales. We sell by mail and welcome all correspondence. Visitors are always welcome. We are located 2 miles south of Atascadero, Calif., on Old Hi-way 101, or #9475 El Camino Real."

Note: Mr. Bouton relates to us that they have had very good results from their ad in R&M and we wish him continued success as advertisers like Bouton's Lapidary are an asset to R&M.

A letter dated July 25, 1957 from the office of Harry Bookstone, 22 West 48th St., New York 36, N. Y., regularly advertising in ROCKS AND MINERALS, reads as follows:

"HARRY BOOKSTONE took advantage of the summer lull to make a quick trip to Brazil. He found supplies very tight and comparatively little new specimen material turning up, with considerable competition for what is available. His best finds were some long pencils of aquamarine (specimen quality, not for cutting) and some fine facetting green spodumene. He also got a fair selection of examples of the typical Brazilian minerals, and some good quality tumbling material. Bookstone specializes in cut stones for the wholesale trade, but as a lover of fine minerals he does his bit for the amateurs.

"He reports an interesting new rough material, suitable for cabochons mainly as it is flawed, in a rich blue kyanite, a stone that is a real challenge for amateur lapidaries who want to try something unusual and who have the confidence to handle anything with such a hardness variation. A new stone that seems to be dyed, because its color is too good to be true, but still has to be

checked, was seen in Rio and is beryl. Rose pink beryl (opaque) like this has never been found—hence the conviction that it must be dyed. Samples are on their way up.

Note: Contact Harry Bookstone, he'll be pleased to receive your inquiry and when visiting New York City, drop in at 22 West 48th St., for good buys in rare gems and mineral specimens.

Another fine advertiser of R&M, Technicraft Lapidaries Corp., 3560 Broadway, New York 31, N. Y., forwards the following note of interest.

"We have just completed an agreement with the largest producing Lapis Lazuli mine in Chile to distribute Lapis Lazuli in the U.S.A., both wholesale and retail. I have seen samples of this material and some qualities are as fine as anything we usually receive from Afghanistan. The prices of this material has been standardized as to give good to excellent value to both dealer and hobbyist. Dealer inquiries invited."

Note: Technicraft Lapidaries Corp. has one of the largest and most complete supply houses in New York. Satisfaction guaranteed on purchases and you'll enjoy dealing with this fine concern as they have a wonderful reputation. Get your name on their mailing list today.

Robert A. Wells, Gemologist, after many months absence from our classified section due to moving from Buffalo, N. Y. to Cleveland, Ohio, informs us he is about ready to renew advertising with us again. Below is a little item he has forwarded us for insertion.

"Now that I have become somewhat settled again I hope to renew old acquaintances with many former, and I trust new customers. As far as I know I offer a unique service to the Rock Hound—this is that I am the only dealer offering a SEARCH SERVICE for scarce, out-of-print books dealing with Gems, Gemology, Jewelry and Mineralogy. By this I mean that I keep records of all inquiries for books, pamphlets etc.,

and attempt to locate copies for customers. I do not rely only on my stock, but I advertise in trade Journals for the desired items."

Note: You may contact Robert A. Wells at 332 Arundel Road, Cleveland 16, Ohio.

The following note has been received from Harold B. Johansen:

"We wish to announce that the Dromo Sales company of Indianapolis, Ind., has been sold. Old and new customers of this company may send their inquiries to their new address at P.O. Box 293R, Fortville, Ind., under new management."

Note: We wish the best of luck to the new management and urge our readers to take note of their display ad with this issue.

Here is a very interesting item from the proprietors of Crater of Diamonds, Mr. and Mrs. Howard Millar, of Murrfreesboro, Ark.

"We are now packing one sack which guarantees a diamond in every sack for \$2.75 postpaid, and also the one we have been packing which is mine run so to speak, not all sacks being guaranteed. We are also offering a replica of the cut "Star of Arkansas" found here March 4, 1956. This replica is cut of genuine Arkansas quartz for us in Japan. It is the exact size of the "Star", and we have had many compliments on it by people who have seen the genuine diamond."

"Our Governor, Orvil Faubus, gave one of the replicas of the "Star of Arkansas" to each of the Governors during the Governors convention in Virginia a few weeks ago, and also one to President Eisenhower. The sacks were given to the Representatives of the Mexican Government by the Governor on a recent good will trip to Mexico City.

"Our business has been very good this year, and we have had 248 diamonds found this year. Several 2 to 3 carat diamonds have been found also this year. We sell out of the copies of Rocks

AND MINERALS before the first week is gone by."

Note: We have seen the replica of the "Star of Arkansas" and it makes a very nice addition to one's collection. Only \$5.95 postpaid, each boxed and stamped in gold. You may order your replica of the "Star of Arkansas" from Crater of Diamonds, Murfreesboro, Ark.

Dennis M. McGill, 111 East Vine St., Lancaster, Pa., advertising in R&M this issue in both display and classified sections has forwarded to us a card with six very beautiful Pennsylvania Gemstones mounted very nicely.

"Each gemstone is identified as to locality and county in Pennsylvania. A set of six cabochon cut stones sells for \$5.00, tax included. Also each stone is 18x13 oval. The six cabochon cut stones are listed as follows: Gem rhyolite, Unakite, Williamsite, Agate, Amazonite, Aporphyolite."

Note: Above mentioned set of six gemstones would make a very attractive gift for those interested in fine material. Very nice indeed.

Franklin W. Pierce of the House of Onyx, 406 Ridgefield Ave., Bridgeport, Conn., now advertising with us this issue, has purchased the entire stock and equipment of the late William Otersen. The late Mr. Otersen was well known throughout the mineral field and had developed the skill of cutting and polishing to an exceedingly high degree. Mr. Pierce relates to us the following.

"We plan to take up where the late John Vlismas left off. I had my tutoring from him as well as from the late William Otersen. Now I can start to do what I always wanted—Stone Craftsmanship."

Note: The late John Vlismas was one of the most colorful and well known figures in mineralogical circles. He was a stone craftsman to the 9th degree. Franklin W. Pierce of the House of Onyx has acquired much of the knowledge of these fine gentlemen mentioned above and we urge those interested in stone

craftsmanship at its best to contact Mr. Pierce. He'll be pleased to hear from you. Also take note of their ad with this issue in our display section for some really fine buys.

From SHALE'S, P.O. Box #35123, Los Angeles 35, Calif., we have received the following announcement:

"Our new showrooms are now open at 9226 W. Pico Blvd., Los Angeles 35, Calif. We have a complete stock of fine crystallized minerals, cutting materials, lapidary equipment, findings, etc. Some of the items we have to offer noted below:

"Rough star ruby, India—Tigereye, Africa—Moonstone, India—Kyanite crystals, Brazil—Fine Opals, Australia and many other choice items. All orders filled promptly."

Note: We have seen some of the material being offered by SHALE'S as we have described in our column with the July-Aug. issue "With our Advertisers". Inquire of them for some exceptional buys.

Louis H. Roth of Radiant Ultra Violet Products, Box 5, Cambria Heights 11, N. Y., recently demonstrated to staff of R&M (2) very nice Radiant Ultra Violet lamps now being advertised through the display section of R&M.

"Radiant Model SW-1 short wave, and priced at \$27.50 may be used for general laboratory research, mineral prospecting and collecting. Uses highly polished and precision ground filter of superior quality. Purplish cast so minimized that it defies detection. Replacement tube \$4.25, replacement filter \$8.00.

"Radiant Model SL-1, Long-short wave, and priced at \$42.50. A true combination utilizing both long and short wave ultra violet. Housed in a strong, good-looking, phenolic bakelite cabinet. Uses identical filter glasses as in single units. Wave length changed at will by flip of selector knob. Operates on 110 volts, 60 cycles, A.C.

(Continued on page 500)

PUBLICATIONS RECENTLY RECEIVED

Grigson—The Living Rocks.

By Geoffrey Grigson. Preface by André Maurois of the Académie Française with a commentary by Geoffrey Grigson and photographs and magnifications by Stévan Célébonovic. Translations by Joyce Emerson and Stanley A. Pocock—94 pp., 64 full page photos (24 of minerals, 40 of fossils), 1 geological table. 8½x11½. Published by the Philosophical Library, 15 E. 40th St., New York 16, N. Y. \$6.00

This book is devoted chiefly to photographs of minerals and fossils. The photographs are clear and large (many are full page—8½x11½)—very, very nice.

In the preface, Mr. Maurois writes:

"Surprising forms of natural beauty are revealed by the photographs of minerals and fossils in this album. Millions of years before the existence of man, there were these graceful and symmetrical lines, these regular and intricate decorative patterns—forms of beauty we tend to think of as having been invented by human artistry. Gazing at a shell reminiscent of the archaic capitals of the Church of Sainte Madeleine at Vezelay, or at another unlike the experimental work of our most modern sculptors, we cannot but ask ourselves what unknown cosmic Will desired and designed these objects.

"God, according to the Greeks, is a geometer. It is certainly true that the simple forms upon which the science of geometry is based must have been suggested to man by the realities of Nature. The planets—Earth among them—describe an ellipse round the sun. They are approximately spherical. Light, though sometimes refracted, suggests the idea of a straight line. Curves, such as helices or spirals, which are the most difficult to calculate, are to be found among the shells as they are among plants. The formation of crystals demonstrates that nature is as meticulous in her designs as an architect. One has only to look at the astonishing plinth surmounted by a pyramid which is produced quite spontaneously by the mineral anatase."

Stockwell—Land of the Oldest Hills.

By Daisy Pat Stockwell—141 pp., illus., 5¾x8½. Published by Caxton Printers, Ltd., Caldwell, Idaho \$4.00

Here is a book written by a mineral collector, a subscriber for R&M.

Born and reared in the land of which she writes, Daisy Pat Stockwell tells with warmth and tenderness of hill-folk life and living. Nowhere, she says, will you find a people more steadfast to home and family. And nowhere does spring steal in more shyly or burst forth with more beauty than in the Ozarks. In summer the night sky drips with a million sparkling stars and the hill country is filled with the sweet strains of fiddlin' music. The winds ripple the acres of ripening wheat and the hillmen hurry about their summer harvesting. Then comes the autumn, with a peace and beauty all its own, and the Ozarkians go through the days feasting on the season's glory, until, one night, the warmth and sunshine are ended by a great white frost. Then the long, cold winter closes in and folks busy themselves with cooking foods, quilting, and making gifts for loved ones.

Next year, and the year after that, it will be the same, for customs change little in the Land of the Oldest Hills.

J. J. Jewelcraft 1957-58 Blue Book

J. J. Jewelcraft, 2732 Colorado Blvd., Los Angeles 41, Calif., have just issued their 1957-58 Blue Book (Catalog No. 12). It is a beautifully illustrated 156 page, 8½x10½, publication full of items devoted to gem cutters, mineral collectors and gem enthusiasts. Items such as jewelry tools, findings, lapidary equipment, tumblers, desk pens, mineralights, cut stones and books are not only listed but profusely illustrated.

A note attached to the catalog reads—

"Just off the press—another Blue Book.

"This is the latest Blue Book to be issued. It is the new Fall-Winter edition for 1957-58—156 pages.

"It has 5 more pages of jewelry—one of

the latest items are children's rings and Little Misses' jewelry in 10 Kt. Gold at about the \$6.75 price range. Sizes from 2 up. This catalog is of special value to those proud grandparents who are always looking for little folks' jewelry."

Prices on this very fine catalog, only \$1.00, Order your copy today!

Canada Publications

Northern Quebec Geological Report 75, by Josaphat E. Gilbert and Robert Bergeron. 34 pp., 31 plates, 1 geological map in pocket— $6\frac{1}{2} \times 9\frac{1}{2}$. Published by Department of Mines, Quebec, Que. Canada.

Map 1957-B-Haliburton-Bancroft Area—scale 2 miles to 1 inch.

The above map, a compilation of the latest topographical and geological information of this area in Ontario is now available at \$1.00 per copy (Canadian Funds). Payment should be made by check, money order or postal note and made payable to "Treasurer of Ontario."—Send orders to Department of Mines, Toronto 2, Ont., Canada.

Lieber—Die Fluoreszenz von Mineralen.

By Dr. Werner Lieber— $5\frac{1}{2} \times 8\frac{1}{2}$, 62 pp., 23 illus.—1 page in color.

The Fluorescence of Minerals by Dr. Lieber is all in German and looks like a most interesting publication—many of the minerals described are from U.S.A.—one page featuring 15 minerals and the color page (4 beautiful fluorescing minerals) are from Franklin, N. J.

No price is given for the pamphlet but if interested contact the author (a good subscriber of R&M)—Dr. Werner Lieber, Dante Str. 50, Heidelberg, Germany.

Dr. Lieber speaks and writes English.

Gritzner's Book Catalog.

Gritzner's, 135 N. Sirrine St., Mesa, Ariz., has issued a 12 p. $5\frac{1}{2} \times 8\frac{1}{2}$ catalog devoted

entirely to books covering gems, lapidary, jewelry, minerals, rocks, fossils, prospecting, mining, etc.

New York Publications

We are sending you review copies of two of our pamphlets in which we believe your readers will be interested.

COMMON FOSSILS OF WESTERN NEW YORK was written by Carol A. Heubusch, geologist at the Buffalo Museum of Science. It may be obtained for \$25 postpaid through the Museum's Sales Counter.

Clifford J. Awald, who has taught mineralogy courses at the Museum and is a member of the Board of Managers of the Buffalo Society of Natural Sciences, wrote **INCLUSIONS IN QUARTZ CRYSTALS**. This booklet may be purchased for \$.20 postpaid.

Both Miss Heubusch and Mr. Awald are officers of the Geological Section of the Buffalo Society of Natural Sciences.

Emily H. Zurbrick, Editor
Buffalo Museum of Science
Humboldt Park
Buffalo 11, N. Y.

Common fossils of western New York, by Carol A. Heubusch, is an 8 page, 6×9 , illustrated pamphlet.

Inclusions in quartz, by Clifford J. Awald, is a 6 page, 6×9 , illustrated pamphlet.

Opals

Cranbrook Institute of Science, Bloomfield Hills, Mich., have printed a most interesting pamphlet on opals. It is a 5×8 , illustrated, 14 p. publication (16 beautiful opals in color on front and back covers).

Price for this attractive pamphlet.....40¢

Handbook for Uranium Prospectors Revised

A revised edition of the popular pocket-sized handbook for uranium prospectors, "Prospecting for Uranium," is available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25,

D.C. The booklet is jointly published by the U.S. Atomic Energy Commission and the U.S. Geological Survey. The price is 75¢ per copy.

The revision includes an enlarged section on the geological occurrence of uranium based on the large amount of new information developed during the growth of the uranium industry since the earlier edition (1951). The revision also includes information on the domestic uranium procurement

program announced in May 1956, the latest AEC uranium price circulars and an up-to-date compilation of laws and regulations affecting uranium mining.

The booklet is designed to answer inquiries received by Government agencies as a result of the Commission's domestic uranium procurement program. Approximately 266,000 copies of the earlier editions were sold. Orders for the revised edition are being accepted by the Government Printing Office.

Amateur Lapidary

(Continued from page 472)

locations there and obtaining specimens of these materials. The author will be most happy to supply you with the names and addresses of several of the most avid collectors in the San Diego region who, in turn, should be able to provide you with further information as to the present status of the mines. Do not expect to casually drop by and pick up a bushel or so of the many varieties available, rather content yourself with any small bit you may be able to recover from the dumps, as some of the local citizens may have been digging for years and have yet to find a goshenite. Your luck may be better. At least, let us hope that it is and that you find a good crystal of each of San Diego County's varieties of beryl!

With our Advertisers

(Continued from page 497)

"The Radiant Converter, Models 6 and 12a, priced at \$12.00 will operate either of the above models SW-1 or SL-I with electricity furnished by auto's cigarette lighter right in the field! Makes for mobility and portability. Eliminates need of expensive batteries, adapters, etc. When ordering specify whether you have 6 or 12 volt ignition. This is important so we can furnish the right unit for you."

Note: We heartily recommend the above models, they are light yet durable, compact, very attractive and will make a valuable addition to any mineral collector or laboratory. Excellent to take along on prospecting trips, etc. These models will do the job and you'll be satisfied with the results.

DINOSAUR GIFT & MINERAL SHOPPE

RONALD E. JANUZZI, Prop.

"Those interested in minerals should consult a man experienced in the field, and a specialist in his area, only then will you get the full benefit out of your efforts in the study of mineralogy."

MINERALS — REAL STONE JEWELRY — BOOKS — ULTRA-VIOLET LIGHTS

Route 6, Danbury-Brewster Road, Brewster, N.Y.

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